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# Blood Transfusion Policy

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<td>Department</td>
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**Equality Impact Assessment**
Peterborough and Stamford Hospitals NHS Foundation Trust (PSHFT) strives to ensure quality of opportunity for all service users, local people and the workforce. As an employer and a provider of health care, PSHFT aims to ensure that none are placed at a disadvantage as a result of its policies. This policy has therefore been equality impact assessed to ensure fairness and consistency for all those covered by it regardless of their individuality. The results are shown in the Equality Impact Tool at Appendix 8.
**DOCUMENT VERSION CONTROL SCHEDULE**

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<td>Addition of advice from National Comparative Audit of blood transfusion regarding recording of 15 minute observations</td>
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<td>Addition of section 15 Additional advice for paediatric red cell transfusions (author: Dr D Yong, consultant paediatrician)</td>
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Key Points

This document provides policy direction on the following:

- Staff responsibilities regarding the transfusion of blood components.
- The storage, requesting, prescription, handling and administration of blood and blood components.
- Care of the patient having a transfusion.
- Managing and reporting transfusion adverse events and reactions.
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1. Introduction

1.1 This policy has been produced to ensure the safe and effective use of blood and blood products in the Trust.

1.2 The policy is to be used in all clinical areas, and by all members of staff involved in the sampling, handling, prescription and administration of blood products and components.

1.3 It incorporates national & international guidelines and legislation, and directives from the Department of Health and European Union.

2. Purpose

The purpose of this policy is to:

2.1 Provide a clear framework and guidance for safe transfusion practice.

2.2 Ensure a consistent safe approach to the prescribing, handling and administration of blood products and components throughout the trust.

2.3 Ensure that all members of staff involved in any stage of the process of transfusing blood components and blood products are fully conversant with their role and the legal aspects of this procedure.

3. Scope

The policy applies to all staff with responsibility for prescribing, handling or administering blood and blood components.

4. Definitions

4.1 Blood product – Any therapeutic substance prepared from human blood.

4.2 Blood component – Red cells, Platelets, Fresh frozen plasma, Cryoprecipitate

4.3 Plasma derivative – proteins prepared from large pools of human plasma under pharmaceutical manufacturing conditions, e.g. coagulation factors, immunoglobulin, human albumin solution.

4.4 SHOT – Serious Hazards Of Transfusion reporting system.

4.5 MHRA – Medicines and Healthcare products Regulatory Authority – agency with responsibility for standards of safety, quality and performance.
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4.6 **SABRE** – Serious Adverse Blood Reactions & Events, a MHRA reporting scheme.

4.7 **HTC** – Hospital transfusion committee, comprising of the Lead Consultant for Transfusion, Transfusion Laboratory Manager, Transfusion Practitioner and a representative from at least three Clinical Business Units.

4.8 **HTT** – Hospital transfusion team, comprising of the Lead Consultant for Transfusion, Transfusion Laboratory Manager and Transfusion Practitioner.

4.9 **TOMT** – Transfusion Operational Management Team comprising of the Pathology Quality Manager, Transfusion Laboratory Manager and Transfusion Practitioner.

4.10 **MGC Pathology** Management and Governance Committee. The Committee exists to provide leadership on Pathology and Pathology related issues by providing multi-disciplinary input into the operational management of Pathology driven services and to ensure appropriate standards of care delivered are assured through Clinical Governance, finance and performance mechanisms.

5. **Duties and responsibilities**

The duties and responsibilities of each staff group are detailed below. **All staff must ensure that they have attended the appropriate training and completed the relevant competency assessments for their role, before participating in transfusion** – please refer to the trust policies for venepuncture and also competency assessment of staff handling, collecting and/or administering blood and blood components, available on the intranet.

5.1 **Medical staff**

In addition to the responsibilities in 5.2 (below) Medical staff are responsible for:

- Prescribing blood, blood components and blood products, including any special requirements (e.g. irradiated, CMV negative, HEV Negative).
- Ensuring documentation of the reason for transfusion in the medical notes.

5.2 **Medical staff, Operating Department Practitioners, Registered Nurses and Midwives** may, after completing the appropriate training and assessment, carry out the following and be responsible for:

- Requesting blood, blood components and blood products.
- Taking blood samples for pre-transfusion grouping and compatibility testing.
- Explaining the risks and benefits of blood transfusion to the patient, their relatives and carers.
- Collection of blood/blood products for administration.
- Carrying out the procedure for the administration of blood and blood components/products.
- Monitoring patients during transfusion, and carrying out the appropriate actions in the event of adverse effects.
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- Reporting of transfusion reactions or other incidents related to transfusion.
- Documentation of the care given during the transfusion episode.

5.3 Healthcare Assistants/Support workers may, after completing the appropriate training and assessment:
- Take blood samples for pre-transfusion grouping and compatibility testing.
- Collect blood/blood products for administration.

5.4 Phlebotomists' responsibilities
- Taking blood samples for pre-transfusion grouping and compatibility testing.

5.5 Porters' responsibilities
- Movement of blood between issue fridges.
- Collection and transport of blood components to the patient's bedside is not a general portering responsibility. However, in an urgent/emergency situation porters working in the Emergency Department and Theatres may also transport blood - including emergency O RhD negative blood - in an emergency box, provided they have undertaken specific training and a competency assessment.

5.6 Staff in the transfusion laboratory are responsible for:
- Ensuring that request forms and the labelling of blood samples comply with local guidelines (refer to section 7.2).
- Blood grouping and compatibility testing as per authorised laboratory protocols.
- Checking whether there are any special requirements whenever blood or blood components are requested.
- Ensuring that blood and blood components are properly labelled, and that the identification details of the patient and the blood to be transfused are the same on the compatibility label attached to the pack and the blood transfusion report form.
- The investigation and reporting of transfusion reactions or other incidents related to transfusion to the appropriate agency.
- Ensuring participation in National Blood Stocks Management Scheme to monitor blood usage and wastage.

5.7 The Transfusion Practitioner is responsible for coordinating:
- Education and development – induction and updating of all staff involved in the transfusion process.
- The review of policies and procedures and new practices pertaining to transfusion.
- Clinical audit of transfusion practice.
- Advice to individuals, clinical teams, patients and outside agencies on current issues surrounding transfusion practice.
- The investigation of transfusion related adverse events including near misses.
5.8 **The Hospital Transfusion Committee** is responsible for:
- Promotion of best practice through local protocols based on national guidelines via the Hospital Transfusion Team.
- Reviewing and approving blood transfusion policies and procedures.
- Reviewing the appropriateness of blood transfusion, and making recommendations about the appropriate use of blood and blood components, including use of alternatives to transfusion and cell salvage.
- Leading multi-professional audit of the use of blood and providing feedback on audit.
- Promoting the continuing education of all staff involved in blood transfusion.
- Local contingency planning for and management of blood shortages.
- Reporting regularly to Regional Transfusion Committees, and through them, to the National Blood Transfusion Committee.
- Consultation with local patient representative groups where appropriate.
- Reviewing adverse transfusion events including near misses.

5.9 **The Hospital Transfusion Team** is responsible for:
- Assisting in the implementation of Hospital Transfusion Committee’s objectives.
- Advising and supporting clinical teams on the safe and appropriate use of blood.
- Promotion of good transfusion practice.
- Acting as a resource for training of staff involved in transfusion.
- Advising the Hospital Transfusion Committee of the activities of the Regional Transfusion Committee and of new national guidance.
- Preparing a report of its activities for the Hospital Transfusion Committee and the QGOC.

5.10 **The Transfusion Operational Management Team** is responsible for:
- Developing and reviewing pathology quality objectives, including updating procedures and practice as MHRA and Good Manufacturing Practice requirements develop, and completion of the annual MHRA compliance report.
- Ensuring effective clinical governance and risk management processes are in place by investigating complaints and adverse events and undertaking necessary corrective and preventative actions as required including root cause analysis of these events as necessary.
- Building effective two-way communication with other departments, including ensuring new policies and guidelines are communicated and reviewing relevant items of correspondence.
- Reviewing transfusion audits (internal and national) and external inspection reports (e.g. from CQC, MHRA etc.) and agreeing actions and undertaking necessary actions as required.

5.11 **The Trust Management Board** is responsible for:
- Ensuring that there is senior management commitment to Patient Blood Management within the Trust.
- Ensuring appropriate blood transfusion policies are in place, and are implemented and monitored.
5.12 Training responsibilities

- All staff must attend mandatory training as set out in the Training Needs Analysis, where staff fail to attend the process to be taken is described the ‘Mandatory Training Policy’. It is the individual member of staff’s responsibility to ensure they attend the appropriate training sessions, and complete the relevant competency assessments.
- Individual staff who have made the decision that transfusion is never part of their practice (for example Consultant Radiologists, some specialist nursing staff etc.), and therefore will never need to participate in transfusion are asked to sign a transfusion non participation notice (see appendix 7). If their situation changes, they are responsible for arranging the appropriate training and competency assessments.
- A register of those attending sessions is kept by the learning and development centre, and a register of members of staff who have completed competency assessments will be kept by the transfusion department.
- Reports are sent to ward managers informing them which staff have completed an assessment, and which staff are due for review. Reminders will also be sent to those members of staff who need to review their competency assessments.
- Regular reviews of staff collecting and administering components are performed.

6. Storage of blood and blood products

This section contains details about the safe storage of blood products. For guidance on the use and prescribing of specific components, please see separate policies and guidelines, available on the intranet.

6.1 Storage of red cells

6.1.1 Red cells are received from the National Blood Service via the Blood Transfusion Centre at Cambridge. They have a 35-day shelf life from the day of collection and must be stored in a designated blood bank refrigerator at between 4 and 6°C.

6.1.2 Red cells must only be removed from the refrigerator when carrying out laboratory tests, moving stock from one refrigerator to another, or from a refrigerator to the patient's bedside.

6.1.3 A unit removed from the refrigerator can be returned to the refrigerator at any time up to and including 30 minutes from the time that it was removed. Any unit returned to the refrigerator must have the time of return clearly noted in the end column of the pink copy of the compatibility form, next to the time it was originally removed.
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6.1.4 After being out of controlled storage for over 30 minutes the unit must **not** be returned to the refrigerator, the advice of the transfusion laboratory must be sought as to whether it is safe to use the unit.

6.1.5 If it is decided to dispose of the unit, it must be marked as "dangerous for use" and the transfusion laboratory contacted to arrange for disposal.

6.1.6 If there is any doubt as to whether a unit is safe for return or should be disposed of the advice of the transfusion laboratory must be sought.

6.1.7 Where red cells are required to be out of the refrigerator for longer periods of time, for example when being transported between hospitals, transport boxes are available with cool packs. A label will be put on to the box to indicate when the red cells were placed inside. If red cells need to be transported outside the hospital, transfusion must be contacted to organise this.

6.1.8 Blood transfusion staff must inspect the refrigerator's contents each morning and verify that all units can be accounted for.

6.1.9 Red Cell products must never be stored in a domestic or specimen refrigerator on the ward, in clinics or in theatre.

6.1.10 For information on the use of red cells, please refer to the separate guidelines available on the intranet.

6.2 **Storage of Platelets**

6.2.1 Platelets are stored at 22°C in an approved incubator, with constant gentle agitation. This is adjacent to the main blood issue fridges at PCH, and is fitted with a temperature recorder and alarm.

6.2.2 **Platelets must NEVER be stored in a refrigerator.**

6.2.3 Platelets have a maximum shelf life of 7 days from donation to use/disposal. Because of their short shelf life they are not routinely kept in stock. When requesting platelets, consideration must therefore be given to allow adequate time for transport from the NHS Blood and Transplant centres, which will be a minimum of 2 hours, but may take longer, depending on availability. A ‘blue light’ service is available for life threatening conditions which may be requested through the transfusion laboratory by the consultant in charge of the case.

6.2.4 For information on the use of platelets, please refer to the separate guidelines available on the intranet.

6.3 **Storage of Fresh Frozen Plasma**

6.3.1 Fresh frozen plasma (FFP) is stored at -30°C for up to 36 months from the date of issue from the National Blood Service. It is available for the correction of
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coagulation deficiencies in specific situations, and comes as a single bag approximately 270ml.

6.3.2 FFP takes 20-30 minutes to thaw, and for maximum efficacy should be administered as soon as possible after thawing.

6.3.3 FFP packs are stored at 4ºC once thawed, and must be used within 24 hours of thawing- there will be a note to this effect on the compatibility form issued with the pack. If not used within that time, it must be returned to the laboratory for disposal. For FFP thawed to treat major haemorrhage, the shelf life may be extended up to a maximum of 120 hours if stored at 4ºC, but it should be borne in mind that extended post-thaw storage will result in a decline in the content of labile coagulation factors.

6.3.4 Unused packs must be returned to the transfusion laboratory for safe storage if transfusion is not started within 30 minutes of removal from the fridge.

6.3.5 FFP is not to be used as a prophylactic measure. It will only be issued if a coagulation screen has been performed to assess the degree of deficiency. If there is a dispute between the clinical and haematology laboratory staff then the issue will be determined by a Consultant Haematologist.

6.3.6 Virally inactivated FFP, treated with Methylene blue or solvent detergent, is available for all patients born after 1st January 1996.

6.3.7 For information on the use of FFP, please refer to the separate guidelines available on the intranet.

6.4 Storage of Cryoprecipitate

6.4.1 Cryoprecipitate is stored at -30ºC for up to two years from the date of issue from the National Blood Service.

6.4.2 Cryoprecipitate takes approximately 20-30 minutes to thaw, and for maximum efficacy should be administered as soon as possible after thawing.

6.4.3 Cryoprecipitate may be kept at room temperature for up to 4 hours once thawed. If not used within that time, it must be returned to the laboratory for disposal.

6.4.4 One unit of cryoprecipitate contains 0.1 to 0.2 grams of fibrinogen and approximately 100 IU (international units) of Factor VIII. Currently, cryoprecipitate comes ready pooled and each bag is equivalent to 5 standard units.

6.4.5 For information on the use of cryoprecipitate, please refer to the separate policy available on the intranet.
6.5 Storage of other products - Human Albumin Solution (HAS), Prothrombin Complex Concentrate (Octaplex), Factor VIIa (Novoseven), Factor VIII and Anti D

6.5.1 All of the above products are stored within the laboratory, in temperature controlled conditions, and are issued on demand for named patients.

6.5.2 The delivery suite, ante natal clinic, and the gynaecology ward also hold a local stock of anti D for prophylactic treatment.

7. Blood Product Request and Specimen Labelling

7.1 Blood product requesting

- Identify the patient in question.
- Decide on what product you want and for when it is required.
- Make a request via Sunquest ICE giving clinical details and noting any special requirements (e.g. irradiation, CMV negative, Hepatitis E negative).
- If unsure whether a new Group and Save (G&S) sample is required, contact the laboratory.
- Send the request (and the G&S sample) to the laboratory.
- If the request is out of normal laboratory hours (after 17:00, before 09:00 and weekends and public holidays), or for urgent/emergency requests contact the on call Biomedical Scientist (BMS) on bleep 1151.

7.2 Specimen Labelling

7.2.1 The Serious Hazards of Transfusion (SHOT) report highlights the danger of incorrectly labelled samples, and has identified this as a particular area of concern. SHOT states that when labelling samples it is essential to have positive patient identification (from the ID band and by verbal confirmation where possible) however familiar the patient, and that all sample tubes must be labelled at the patient’s side.

7.2.2 The transfusion laboratory will reject any sample which is incorrectly labelled, and a Datix clinical incident record may be generated so that the requesting area can investigate how the mislabelling has occurred.

7.2.3 Labelling of the specimen must be BY HAND. Addressographs (printed labels) will not be accepted by the transfusion laboratory.

7.2.4 The label must have at least three points of identification:
- Unique identifying number (i.e. DIS or NHS number).
- The patient’s full name (surname and forename).
- The patient’s date of birth.
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In an emergency, patients who cannot be identified must have their name and date of birth recorded as ‘unknown’ on the sample, but must still have a case note recorded as the identifier. The label must also include the clinical area, date and time of collection and the signature of the person taking the sample.

7.2.5 Sample details must match those on the request form, and, for inpatients, the patient ID band.

7.2.6 Samples must be labelled at the patient’s side and (if the patient is able to) the patient’s identity should be confirmed by asking them to state their full name and date of birth. For in patients these details should be crosschecked against their ID band.

7.2.7 NEVER pre-label bottles, or take unlabelled samples away from the patient.

7.2.8 When in doubt, or if interrupted, start the venepuncture again (ring the laboratory if necessary).

7.2.9 Take the specimen of blood by venepuncture away from any intravenous infusion sites.

7.3 Confirmation of Blood Group

7.3.1 National guidelines state that if the transfusion laboratory system does not have a record of the patient’s ABO blood group, a second sample should be obtained to confirm the patient’s blood group prior to transfusion (British Committee for Standards in Haematology Guidelines 2012 for Pre-transfusion Compatibility Procedures in Blood Transfusion). The transfusion laboratory will therefore require confirmation of blood group by 2 separate samples (one of which may be a historic test result) prior to issuing crossmatched blood components.

7.3.2 Not all patients will need a confirmation sample- if the patient’s blood group has been tested previously by this transfusion laboratory (even if some years ago) there may be a record of their blood group on the laboratory system.

7.3.3 On receipt of a Group & Save (G&S) or a crossmatch sample, the transfusion laboratory will identify which patients need a further sample for confirmation of blood group.

7.3.4 If a confirmatory sample is required, this information will be communicated to the clinical area (see below):

- **G&S only samples** – a comment informing the clinical area that a further sample is required before crossmatched blood can be issued will be included on the report form and on Sunquest ICE.
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**confirmatory blood group sample required before blood issue**

- **Crossmatch requests** – the laboratory will phone the requesting clinical area to inform them that a second sample is needed before crossmatched blood can be issued. The date, time and the name of the person informed will be recorded.

7.3.5 The confirmatory sample must be taken by a separate venepuncture, ideally by a different member of staff to the initial sample. Please remember this sample will be used to confirm the patient’s blood group. Taking 2 samples at once and keeping one aside to submit later is extremely dangerous practice, and may have severe or possibly fatal consequences.

7.3.6 Until the second sample is received, no crossmatched blood will be issued, so confirmatory samples should be sent to transfusion as a matter of urgency. In dire emergencies, Group O blood will be issued to support the immediate management of the patient, until the confirmatory sample is processed.

7.4 **Specimen requirements**

EDTA sample, 7.5 ml for adults, 2.5ml children. For neonates < 6 months old, a heel prick sample is needed for grouping but a 7.5ml EDTA is also required from the mother.

7.5 **When to take a sample**

7.5.1 Group and Save samples are stored in the laboratory for 28 days and remain valid during that time unless the patient has been transfused or pregnant within the preceding 3 months.

7.5.2 Transfusion or pregnancy may stimulate the production of unexpected antibodies against red cell antigens through either a primary or secondary immune response. The timing of samples selected for compatibility testing must take account of this.

7.5.3 To ensure that the specimen used for compatibility testing is representative of a patient’s current immune status, serological studies should be performed using a sample collected no more than 3 days in advance of the actual transfusion when the patient has been transfused or pregnant within the preceding 3 months.

7.5.4 A formal deviation from the 3 day rule, allowing samples to remain acceptable for up to 7 days will be considered when blood is required to stand by for potential obstetric emergencies, e.g. placenta praevia. Fetomaternal haemorrhage (FMH) constitutes a smaller stimulus than transfusion, because the number of foreign antigens is limited, and in many pregnancies the volume
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of red cells transferred from foetus to mother is too small to stimulate a primary response. In such cases a Concessionary release form (obtainable from Transfusion) filled in by the Obstetrician looking after the patient should accompany the transfusion request for blood.

8. **Prescription of blood and blood products and consent for transfusion**

8.1 **Prescribing**

8.1.1 Prescription of blood and blood products is the responsibility of a doctor and must take into account Trust polices on use of the individual components, Maximum Surgical Blood Order Schedules and patients who refuse blood transfusion.

8.1.2 Alternatives to using donor red blood cells, such as iron therapy, intra and post-operative cell salvage, should be considered and discussed with the patient as appropriate.

8.1.3 It is **vital that any recent transfusion history**, especially at another hospital, is communicated to the Transfusion laboratory.

8.1.4 All blood components should be prescribed using the Trust’s blood component prescription chart. The prescription must include the following details:

- The product to be given.
- Any special requirements (e.g. irradiated, CMV negative, Hepatitis E Negative).
- The quantity to be transfused (i.e. number of units or for children, neonates and patients of very low body weight, an accurate calculation of the volume required).
- Duration of transfusion of each unit.
- Any special instructions (e.g. use of a 'blood warmer' for patients with cold agglutinin disease, medications required to 'cover' transfusion).

8.1.5 To ensure clarity of the prescription the following names of products and abbreviations are acceptable:

<table>
<thead>
<tr>
<th>Name/Abbreviation</th>
<th>Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAS</td>
<td>Human albumin solution</td>
</tr>
<tr>
<td>Platelets</td>
<td>Platelets</td>
</tr>
<tr>
<td>Blood/red cells</td>
<td>Red cells</td>
</tr>
<tr>
<td>FFP</td>
<td>Fresh Frozen Plasma</td>
</tr>
<tr>
<td>Cryo</td>
<td>Cryoprecipitate</td>
</tr>
<tr>
<td>Anti D</td>
<td>Anti D</td>
</tr>
</tbody>
</table>
8.2 Prescription and administration of medications to ‘cover’ transfusion of blood products

A registered nurse, midwife or doctor is responsible for the administration of any medications prescribed to be given at the time of transfusion e.g. hydrocortisone and piriton to prevent febrile transfusion reactions, desferioxamine in patients with iron overload, diuretics to reduce risk of pulmonary oedema etc. These must be prescribed on the patient’s main prescription chart, in the ‘as required’ or ‘once only’ medication section.

8.3 Special requirements- Irradiated, CMV seronegative and Hepatitis E negative products

8.3.1 Irradiated blood products

Irradiated blood products are given to prevent a rare complication of transfusion called Transfusion Associated Graft-versus-host disease (TA-GvHD). Residual donor lymphocytes in the transfused blood component that are compatible with the recipient, but which recognise the recipient as foreign can engraft and initiate TA-GvHD. Patients develop skin rash, diarrhoea and abnormal liver function and deteriorate, with bone marrow failure and death from infection usually within 2-3 weeks of transfusion. TA-GvHD can be prevented by irradiating cellular blood components to be transfused, using gamma or X-rays, since this inactivates the donor leucocytes. Please note that irradiated blood may also be used for any transfusion patient in order to aid laboratory stock control.

If the patient needs to be issued with an irradiated blood component, please answer ‘yes’ to special products required, and also note this in the clinical details on the request form.

Patients requiring irradiated blood should be given an information leaflet and card informing them about their need for irradiated blood components and that they should make clinical staff aware of this.

Please refer to the trust policy for use of irradiated blood products C0662, and the British Committee for Standards in Haematology guidelines on the use of irradiated blood components for further advice or information.

8.3.2 CMV seronegative blood components.

Cytomegalovirus (CMV) is a member of the herpes virus group, which includes herpes simplex and varicella zoster. These share the ability to remain dormant within the body for long periods.

CMV is transmissible by transfusion of blood products. Severe impairment of the immune system by medication or disease may reactivate the virus from its latent state to cause clinical disease which may be fatal. All blood products apart from granulocytes are now routinely leucocyte depleted which effectively reduces CMV transmission.
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**Indications for the use of CMV seronegative blood components**

The following patients should receive CMV negative blood products:

- All pregnant women.
- All recipients of intra-uterine transfusions.
- All neonates up to 28 days post expected date of delivery.

If the patient needs to be issued with a CMV negative blood component, please answer ‘yes’ to special products required, and also note this in the clinical details on the request form.

For further information regarding CMV negative blood components please see the policy C0661 on the intranet.

8.3.3 **Hepatitis E Negative components**

From 14th March 2016 NHS Blood and Transplant are introducing hepatitis E virus (HEV) screened blood components. This is following a recommendation from the Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) that HEV negative components were required for specific patient groups:

- **Patients awaiting solid organ transplant (SOT)** – from 3 months prior to date of planned elective SOT or from the date of listing.
- **Patients who have had SOT** – for as long as the patient is taking immunosuppressants.
- **Patients with acute leukaemia** – from diagnosis (unless/until a decision is made not to proceed with stem cell transplant).
- **Patients awaiting allogeneic stem cell transplant** – from 3 months prior to the date of planned transplant and up to 6 months following transplant, or for as long as the patient is immunosuppressed.
- **Extra corporeal procedures** – such as dialysis or extra-corporeal circulatory support for SOT patients or SOT patients receiving immunosuppressive medication.

If the patient needs to be issued with a HEV negative blood component, please answer ‘yes’ to special products required, and also note this in the clinical details on the request form.

8.4 **Latex allergies**

The National Blood Service has excluded latex from all of its blood pack configurations.

9. **Alternatives to transfusion – surgical patients**

9.1 **Iron deficiency anaemia**

9.1.1 Offer oral iron before and after surgery to patients with iron-deficiency anaemia.
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9.1.2 Consider intravenous iron before or after surgery for patients who:
- Have iron-deficiency anaemia and cannot tolerate or absorb oral iron, or are unable to adhere to oral iron treatment (see the NICE guideline on medicines adherence).
- Are diagnosed with functional iron deficiency.
- Are diagnosed with iron-deficiency anaemia, and the interval between the diagnosis of anaemia and surgery is predicted to be too short for oral iron to be effective.

9.2 Tranexamic acid

9.2.1 Offer Tranexamic acid to adults undergoing surgery who are expected to have at least moderate blood loss (greater than 500 ml).

9.2.2 Consider Tranexamic acid for children undergoing surgery who are expected to have at least moderate blood loss (greater than 10% blood volume).

9.2.3 Do not routinely use cell salvage without Tranexamic acid.

9.2.4 Consider intra-operative cell salvage with Tranexamic acid for patients who are expected to lose a very high volume of blood (for example in cardiac and complex vascular surgery, major obstetric procedures, and pelvic reconstruction and scoliosis surgery).

10. Patient information and consent

10.1 The NICE Guideline for Blood Transfusion (2015) states that patients who may have or who have had a transfusion, and their family members or carers (as appropriate), should be provided with verbal and written information explaining:
- The reason for the transfusion.
- The risks and benefits.
- The transfusion process.
- Any transfusion needs specific to them.
- Any alternatives that are available and how they might reduce their need for a transfusion.
- That they are no longer eligible to donate blood.
- That they are encouraged to ask questions.

This discussion must be documented in the patient's notes.

The National Blood Service has produced a patient information leaflet – 'Will I need a Blood Transfusion', which covers much of this information, and so this should be offered to the patient as appropriate. These are available in all relevant clinical areas, and at the blood banks. For further supplies, please contact the Transfusion Practitioner.
10.2 In addition, the National Blood Service have produced a number of other patient information leaflets – all of which are available in the relevant clinical areas or from the Transfusion Practitioner, including:

- Information for patients needing irradiated blood.
- Anaemia.
- Will I need a Platelet transfusion?
- Fresh Frozen Plasma and Cryoprecipitate.
- Information for patients who have received an unexpected transfusion.
- Blood groups and red cell antibodies in pregnancy.
- Children receiving a blood transfusion – A parents’ guide.
- Babies receiving a blood transfusion – A parent’s guide.
- Iron in your diet.

10.3 Written consent to transfusion is preferred but not essential. Verbal consent can be sufficient as long as this is documented and preferably witnessed.

10.4 When a patient refuses a transfusion, the decision making process should be fully documented in the patient’s notes. Staff involved should discuss the reason for refusal of the proposed treatment and ensure that the patient understands the risks and benefits of transfusion, the alternatives, and the possible consequences of refusing transfusion, including possible death.

10.5 Management of patients who refuse blood/blood products

10.5.1 The aim of this section is to provide information about the management of patients who may refuse transfusion of blood/ or blood products. These patients include Jehovah’s Witnesses but may include others.

10.5.2 The general rule is that any adult (18 years of age or over) with mental capacity can refuse any form of treatment, including a blood transfusion. It does not matter whether there is any logical reason for such a refusal. Please refer to the trust consent policy (0412) available on the intranet for further advice.

10.5.3 The Trust has a policy for treatment of Jehovah’s Witnesses (0413), which should be consulted for advice when treating these patients. It is available on the intranet.

10.5.4 If the patient lacks mental capacity and there is a valid advance decision or directive in existence which states that a blood transfusion is not to be given then this should be adhered to unless there is a proper reason not to do so. The Trust policy on advance decisions should be consulted (0370); this is available on the intranet.

10.5.5 It is possible that transfusion of a patient, without his or her informed consent will constitute an assault and battery. The legal services department must be consulted if there are any concerns as to whether or not transfusion may be performed.
10.5.6 It is important to remember that a patient can change their mind at any stage. Just because a patient may have refused a transfusion at an earlier stage does not mean that he/she is refusing a transfusion at all future times, especially in a life or death situation.

10.6 **Treatment of Adults who refuse transfusion**

10.6.1 In clinical situations where blood transfusion would be the standard management, consideration should be given to:
- Medical alternatives and treating without using blood.
- Discussing with other doctors experienced in non-blood patient management.
- Transferring patient to a hospital experienced in non-blood management before the patient’s condition deteriorates.
- Consulting with the Trust’s Legal Services Department.

10.6.2 In a life-threatening emergency, the usual rules apply if the patient has mental capacity i.e. consent is required. The above actions should be followed where possible. If the patient lacks mental capacity and there is a valid Advance Decision/Directive in existence this must be adhered to. In the absence of an Advance Decision the clinicians must act in the best interests of the patient if he/she lacks mental capacity.

10.7 **Surgical Patients who refuse blood transfusion**

10.7.1 Elective surgery in patients who refuse blood transfusions must be carefully planned with discussions between the patient, Consultant Anaesthetist and Consultant Surgeon.

10.7.2 If either the surgeon or the anaesthetist is unhappy to perform the surgery because of haemorrhagic risk, the patient must be referred to a team who is willing to take on the case. A detailed account of discussions should be documented in the patient’s records with a clear management plan available to all staff involved in the patient’s care.

10.7.3 The decision to refuse blood products must be indicated on the surgical consent form, signed by the patient and medical representative and filed in the patient’s records.

10.7.4 **Obstetric Patients who refuse blood transfusion**

Please refer to Trust’s maternity guidelines section 3.9 14 *Women who refuse blood and blood products in pregnancy, labour and the puerperium* – this is available on the intranet.

10.8 **Treatment of children and young people under 18 years**

10.8.1 Theoretically, children cannot give their own consent until the age of 16. However, following the decision of the House of Lords in *Gillick v West Norfolk*
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& Wisbech Area Health Authority it is now established law that a child of sufficient maturity can in certain circumstances give consent. The following criteria must be adhered to:

- There is no undue pressure to give consent.
- The child understands the potential risks and benefits of proposed treatment.
- The value of parental support is discussed.
- The treatment is in the child's best interest.
- The child's physical and/or mental health is likely to suffer if treatment is not started.

10.8.2 If the child is over 16 or a minor and judged to be of sufficient age and maturity to understand fully the implication involving the use of blood, then he or she may give consent to transfusion, even if parental consent is denied.

10.8.3 Where a young person of 16 or 17 years, or a child under the age of 16 who is deemed competent, refuses to consent to treatment, it may be possible to override such a refusal if it would, in all probability, lead to the death of the child/young person, or to severe permanent injury. Healthcare professionals must seek the advice of the Legal Services Department in such a situation.

10.8.4 If treatment of children involving blood transfusions is felt essential and is against the wishes of the parent(s) or guardian(s), hospital staff should address the following questions:

- Have all non-blood medical and surgical management options been fully explored?
- Is there another hospital willing to treat without allogeneic blood?
- If the family are Jehovah’s Witnesses, has the JW Hospital Liaison Committee been asked for advice/assistance?
- If, despite all of the above, the child still requires a transfusion but the parents refuse to consent to this then the Legal services Department must be consulted as it may be necessary to seek approval from the court.

10.8.5 If there is no time to take legal advice, the situation is life threatening and a delay in blood transfusion might be fatal; clinicians must act in the patient’s best interests. Ideally the decision to give blood in these circumstances should be made by two consultants. The reasons for the transfusion must be fully documented in the medical records.

10.9 Useful Contact Numbers

- Legal Services Manager ext 8608
- Legal Services Adviser ext 8607
- Legal Services Adviser ext 8604
- Assistant Legal Services Manager ext 8603

The Department can be contacted out of hours via switchboard.

The Department must be contacted if a declaration from the Court is required.
11. Removal of blood and blood products from the Blood Bank

11.1 Blood and blood products should only be removed from a blood bank refrigerator by members of staff who have attended a transfusion update session, and who have completed a competency assessment in handling and collection of blood. This also applies to any agency and locum staff working in the trust, including Flexible Staffing Service staff, and student nurses midwives and ODP’s. The policy for competency assessment for staff (C0175), and competency assessment forms are available on the intranet.

11.2 Although porters may move blood and blood products from one blood fridge location to another, collection of units for immediate patient use is not a portering responsibility. However, porters may transport blood to the Emergency Department in a box, including emergency O RhD negative blood in an urgent/emergency situation.

11.3 Pre collection checks

Before collecting the blood component, the following should be ensured by clinical staff:

- The patient is wearing an identification band.
- The reason for the transfusion has been documented in the medical notes.
- Wherever possible, that the risks benefits and alternatives to transfusion have been discussed with the patient (and/or for paediatric patients those with parental responsibility), that there is a record of this is in the notes and consent obtained.
- The blood component has been prescribed on an approved prescription chart and any special requirements noted.
- There is appropriate and patent intravenous access.
- There are suitably trained and competent staff available to care for the patient for the duration of the transfusion.
- The patients baseline clinical observations (temperature, pulse, blood pressure, and respiratory rate) have been completed.

11.4 Removing blood components for immediate patient use

11.4.1 Only collect units when it is intended to begin administration within 30 minutes.

11.4.2 Take the patient’s blood product prescription chart (this contains the patient’s full name, date of birth, hospital number and component type to be collected) to the blood fridge. For second and subsequent units the yellow copy of the compatibility report, obtained when the first unit is collected, must also be taken. If the prescription chart cannot be taken away from the clinical area due to urgent care, other printed information containing the patient’s full name, date of birth and hospital number may be used in these circumstances.

11.4.3 Locate the patient’s transfusion compatibility reports, which are kept in the folder adjacent to the refrigerator. There are 2 copies. The yellow copy is the
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copy to be taken to the ward and may eventually be included in the patient's notes. The pink copy stays in the folder, for laboratory records.

11.4.4 Check that the patient’s details (full name with correct spelling, date of birth and hospital number) on the prescription chart / ED admissions form match the patient details on the compatibility report. Any differences must be reported to the transfusion laboratory immediately.

11.4.5 Note the serial number of the unit to be used first, or the next in order. Locate the appropriate unit and remove from the refrigerator.

11.4.6 Units should only be withdrawn one at a time unless blood is needed for rapid or massive transfusion when specific instructions will have been given on the collection of more than one unit. For urgent/emergency transfusion in the Emergency Department, where multiple units may be used rapidly, arrangements must be made to issue blood in a transport box (see Appendix D)

11.4.7 Close the fridge door immediately, to maintain temperature control.

11.4.8 Check the details on the laboratory produced red label attached to the unit, agree with those on the compatibility report and prescription chart/ ED admission form paying specific attention to:

- Patient’s full name (including correct spelling).
- Hospital Number.
- Date of Birth.
- Unique component pack donation number.
- Blood Group (if units of a different but compatible group to the patient’s own are issued, there will be a note stating this in the comments box at the bottom of the compatibility form).
- Expiry Date (units must be commenced before midnight on the expiry date).
- ANY SPECIAL REQUIREMENTS e.g. CMV negative, Hepatitis E negative (HEV) or irradiated units.

CMV negative and Hepatitis E (HEV) negative units have this indicated on the label on the front of the unit.
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Irradiated units have a Rad-Sure label attached to the front of the unit (see below).

11.4.9 Check that the unique component pack donation number matches that on the laboratory produced label

11.4.10 If all details agree, sign, date and time both the pink and the yellow copies of the compatibility report. If they do not agree, do not take the units, and inform the transfusion laboratory immediately.

11.4.11 The yellow copy should be taken with the unit to the clinical area. The pink copy must be left in the folder, for laboratory records.

11.4.12 The unit must be taken directly to the patient location. Red plastic bags are provided for transport of individual units to the clinical areas, to allow the unit to be carried securely and to protect confidentiality.

11.5 Collection of Emergency O RhD Negative Blood

11.5.1 Emergency O RhD Negative blood should only be used in life threatening situations, when the patient’s condition indicates that there is no time to wait for group specific blood. In situations of major haemorrhage, reference should also be made to the trust policy ‘Management of major haemorrhage’ (C0185)

11.5.2 Group specific blood is normally available within 15 minutes of the laboratory receiving a sample, and fully cross matched blood within 50 minutes, if no significant antibodies are detected.

11.5.3 Samples for cross match should be taken before transfusion of the emergency O RhD negative blood is commenced.

11.5.4 There are adult units of emergency O RhD negative available in the blood fridges at:
- PCH – main blood bank -2 units.
- MATERNITY DEPT – delivery suite - 4 units.
- STAMFORD HOSPITAL - 2 units.

Please note: there are no emergency O RhD negative units in theatre fridge.

There are 2 units of paediatric emergency O RhD negative blood for neonatal use in the Maternity blood fridge. Adult O RhD negative units must not be used for neonates.
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11.5.5 The emergency O Rh(D) negative units are clearly labelled with yellow tags stating they are for emergency use. Under no circumstances must any other O RhD negative units in the fridge be used.

11.5.6 When taking the emergency O RhD Negative units:
- Sign the pink copy of the compatibility report and put the date & time the blood was taken. File this in the folder next to the blood fridge.
- Sign the yellow copy of the compatibility report and take it with you to be filed in the patient notes.
- As soon as possible, confirm use of the unit by completing the traceability tag attached to the unit with the patients name and hospital number, and return it to the transfusion laboratory. This information allows the laboratory to update the transfusion history for the patient, and also complies with the law on traceability of blood components.

IMPORTANT
The Blood Transfusion laboratory must be informed immediately that you have taken some emergency blood so that replacements can be organised.

11.6 Movement of units between fridges

In order to comply with the Blood Safety & Quality Regulations 2005 on traceability of blood products, a system has been implemented to enable us to be able to trace the movement of blood from issue to final recipient, and to be able to audit this trail. Whenever a blood component is moved between fridges, or from site to site, the following procedures must be followed. This is a legal requirement. If there are any queries, please contact the Transfusion Lab on Ext 8451/2, Bleep 1151 out of hours, or the Transfusion Practitioner on Ext 8422.

11.7 Movement of units between PCH blood fridges

11.7.1 The transfusion department staff issuing the unit will have completed the reverse of the pink copy of the compatibility form, with their name (signed & printed), date & time, and blood bank location.

11.7.2 The reverse of the pink copy of the compatibility form must be completed with the name (signed & printed) and date & time of removal of the unit(s). Both the pink and the yellow forms must be taken to the new location with the unit(s)

11.7.3 The unit(s) should be transported in a red transport bag.

11.7.4 When the unit(s) arrive at their destination, refrigerated products must be placed into the fridge, the reverse of the pink form must be completed (name, date & time of arrival, and location of the fridge). Place the pink and yellow forms into the folder next to the fridge, ready for staff who will be administering the unit(s).
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11.7.5 Non refrigerated products must be taken directly to the clinical area, and handed to an appropriate member of staff, who should sign the front of the pink and yellow copies of the compatibility report as a receipt.

11.8 Movement of units between PCH main issue fridge and satellite hospital blood fridges

11.8.1 Anyone moving refrigerated components between these fridges must use a white transport box (these will be pre labelled with name/number) with a cool pack.

11.8.2 For non-refrigerated components (platelets and cryoprecipitate), a white transport box must still be used, but without a cool pack. The member of staff transferring the unit(s) will have completed the reverse of the pink compatibility form, with their name (signed & printed), date and time, and blood box number/name. The pink and yellow copies of the compatibility forms must be put into the box with the unit(s).

11.8.3 When the unit(s) arrive at their destination, refrigerated products must be placed into the fridge, the reverse of the pink form must be completed (name, date and time of arrival, and location of the fridge). The pink and yellow forms are to be put into the folder next to the fridge, ready for staff who will be administering the unit(s).

11.8.4 Non refrigerated products must be taken directly to the clinical area, and handed to an appropriate member of staff, who should sign the front of the pink and yellow copies of the compatibility report as a receipt.

11.8.5 Units must only remain in a white transport box for a maximum of 2 hours

11.8.6 If blood components need to be taken with a patient being transferred to another hospital (e.g. Addenbrookes, Papworth, and Leicester etc) the transfusion lab must be informed immediately. The transfusion laboratory is responsible for arranging safe transport of the components.

12. Pre transfusion checks - The ‘bedside check’

12.1 The Serious Hazards of Transfusion (SHOT) report has identified the final ‘bedside check’ as vital in preventing the incorrect component being transfused to the patient, which could have serious, even fatal, consequences. It is essential that the following checks are performed, before every unit of blood/blood component is commenced, without exception.

12.2 The bedside check must be completed by two registered healthcare practitioners, one of whom must be a registered nurse, midwife, or doctor who has a permanent contract with the trust. Trust staff participating in the bedside check must have attended a transfusion update and completed the trust competency assessment in caring for a patient having a transfusion.
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12.3 The registered healthcare practitioners must:
- Confirm that the patient’s full name, date of birth and hospital number on the prescription chart, tag attached to the unit of blood and ID band match exactly.
- Check that any special requirements documented on the prescription chart (e.g.: irradiated, CMV or HEV negative blood) match those on the blood component collected.
- Conducted a visual inspection of the component for any leaks or discolouration and check its expiry date.
- If appropriate to the patient’s age or clinical condition, use open questions (i.e. ask “what is your name” and “what is your date of birth”) to confirm the patient’s identity, and check this information against the prescription chart, ID band and tag attached to the unit.
- Check that the blood group of the patient matches that of the component or if the blood group is different, the suitability of the component has been confirmed by the laboratory by a note of this on the yellow copy of the compatibility form.
- Check that the unique component pack donation number on the unit matches that on the label attached by the transfusion laboratory.
- Check the product type to ensure that the correct component was being given e.g.: platelets, FFP etc.
- Check the rate and volume of the infusion and whether any medications are to be administered alongside the transfusion.
- Checked that the component had been commenced within 30 minutes of removal from temperature controlled storage.

12.4 If any detail is not confirmed, do not commence the transfusion, but contact the Transfusion Laboratory immediately. Any inconsistencies must be clarified prior to proceeding with the transfusion.

12.5 If all the details are confirmed, both registered healthcare practitioners should sign the prescription chart to confirm the bedside check has taken place. The date and time that the transfusion commenced and the unit number should also be entered on the prescription chart.

13. Administration of Blood and Blood Products

13.1 Blood and blood products must only be administered by a doctor, registered nurse, ODP or midwife, who has completed the trust IV drug administration assessment appropriate to their area. Staff involved in caring for the patient must also have completed the trust competency assessment in caring for a patient having a transfusion.

13.2 For information on the care of intravenous infusion sites, and the administration of intravenous drugs, please refer to the trust document Policy and assessment for the administration of IV drugs C0019 available on the intranet.

13.3 Although most transfusions are given through a peripheral venous cannula, venous access via short term or indwelling multi-lumen central lines may be used. One lumen should be reserved for administering blood components.
When multi-lumen central venous access devices are used it is generally safe to co-administer other therapeutic solutions through a different lumen as rapid dilution occurs in the bloodstream. Peripherally inserted long central catheters (PICC lines) with narrow lumen diameter may lead to slower flow rates.

13.4 There is no recommended gauge of cannula to be used for blood transfusion. The size of the cannula chosen depends on the size of the vein, and the speed at which the blood is to be transfused.

13.5 All blood components should be transfused through a blood component administration set with an integral mesh filter (170-200 micron). The administration set should be changed at least every 12 hours or after every second unit of red cells. This is intended to reduce the risk of bacterial growth occurring, however a new giving set must be used for each unit of platelets. Human Albumin Solution (HAS) may be given via a standard IV fluid administration set.

13.6 It is unnecessary to use any other intravenous fluid to prime the line; the intended blood/blood product should be used. It is not necessary to ‘flush’ the blood administration set after transfusion. A new giving set should be used if blood components are followed by another infusion. This is intended to reduce the risk of incompatible fluids or drugs causing haemolysis of residual red cells in the administration set or drip chamber.

13.7 The unit should be gently inverted and inspected for any leaks, clots or signs of deterioration prior to connecting to the giving set. Any units that are inadvertently pierced when being prepared for transfusion must be not be used, but returned to the transfusion lab for replacement. If there are any concerns about the condition or appearance of the unit, it must be returned to the transfusion laboratory for inspection by a biomedical scientist.

13.8 The British Committee for Standards in Haematology guidelines state that drugs must not be added to units of blood under any circumstances. In normal circumstances separate intravenous access should be established for blood and blood products if other I.V. therapy is to occur concurrently. Dextrose solution 5% should never be used before or after blood as it causes lysis of red cells. Solutions containing calcium can cause citrated blood to clot.

13.9 Either gravity or electronic infusion devices verified as safe for administration of blood components may be used to administer blood. Electronic infusion devices allow a precise infusion rate/volume to be specified, and should be used for all paediatric and neonatal transfusions. If an infusion device is used:

- The member of staff using the device should be able to demonstrate competency in its use.
- Only use a blood component administration set that is compatible with the infusion device (check manufacturers recommendations).
- The pre-administration checking procedure should include a check of the device and device settings.
13.10 The warming of blood is only indicated in certain circumstances:
- Adults receiving infusion of blood at rates greater than 50 ml/kg/hr.
- Children receiving infusion of blood at rates greater than 15ml/kg/hr.
- Infants undergoing exchange transfusion.
- Transfusing a patient who has significantly cold agglutinins.

Blood should only be warmed in a specifically designed commercial device, with a visible thermometer and audible warning. Blood must never be warmed by improvisations such as putting the pack into warm water, in a microwave, or on a radiator. Please contact the equipment library if use of a blood warmer is indicated.

13.11 External pressure devices make it possible to administer a unit of red cells within a few minutes. They should only be used in an emergency situation together with a large gauge venous access cannula or device. External pressure devices should:
- Exert pressure evenly over the entire bag.
- Have a gauge to measure the pressure which must not exceed 300mm Hg.
- Be monitored at all times when in use.

13.12 Blood Administration rates

<table>
<thead>
<tr>
<th>Component</th>
<th>Giving set to be used</th>
<th>Suggested Infusion Rate (depending on the volume to be given and the clinical status of the patient)</th>
<th>Comment</th>
</tr>
</thead>
</table>
| Red Cells | Blood giving set (170–200 micron filter) | Adults 2-3 hours per unit (more rapidly in severe haemorrhage) Paediatrics 5ml/kg/hr (usual max rate 150ml/hr) | - Either gravity or infusion pumps may be used.  
- Infusion pumps should only be used if the manufacturer verifies them as safe for that purpose.  
- The transfusion must be completed no more than 4 hours removal from the Blood Bank.  
- In neonatal transfusion, if a syringe driver is used for administration, an appropriate filter must be incorporated. |
| Platelets | Blood giving set (170–200) | Adults 30 minutes per unit Paediatrics 10- | - Use a new giving set for each unit of platelets  
- Use immediately after collection from blood bank. **Do not refrigerate** |
**CAUTION:** Refer to the Document Library for the most recent version of this policy

<table>
<thead>
<tr>
<th>Blood Component</th>
<th>Administration Details</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFP (Fresh Frozen Plasma)</td>
<td>Blood giving set (170–200 micron filter)</td>
<td>Adults: 30 minutes  Paediatrics: 10-20ml/kg/hr</td>
</tr>
<tr>
<td></td>
<td>20ml/kg/hr</td>
<td>- In neonatal transfusion, if a syringe driver is used for administration, an appropriate filter must be incorporated. - Once thawed, FFP must not be re-frozen and should be transfused as soon as possible as post-thaw storage will result in a decline in the content of labile coagulation factors. - In neonatal transfusion, if a syringe driver is used for administration, an appropriate filter must be incorporated.</td>
</tr>
<tr>
<td>Cryoprecipitate</td>
<td>Blood giving set (170–200 micron filter)</td>
<td>Adults: as prescribed  Paediatrics: 10-20ml/kg/hr</td>
</tr>
<tr>
<td></td>
<td>20ml/kg/hr</td>
<td>- Use immediately after collection from blood bank. <strong>Do not refrigerate</strong> - In neonatal transfusion, if a syringe driver is used for administration, an appropriate filter must be incorporated.</td>
</tr>
<tr>
<td>Human Albumin Solution (HAS)</td>
<td>15 micron filter vented giving set (most standard IV giving sets have a 15 micron filter)</td>
<td>As prescribed</td>
</tr>
<tr>
<td></td>
<td>20ml/kg/hr</td>
<td>Using a vented giving set will allow the fluid to flow out of the glass bottle</td>
</tr>
<tr>
<td>IV Immunoglobulin</td>
<td>15 micron filter vented giving set (most standard IV giving sets have a 15 micron filter)</td>
<td>As prescribed</td>
</tr>
<tr>
<td></td>
<td>20ml/kg/hr</td>
<td>Some manufacturers supply a giving set in the product packaging</td>
</tr>
</tbody>
</table>
13.13 **If transfusion is delayed or units are not used**

13.13.1 Refrigerated units should only be removed from the Blood Bank when it is certain they are going to be used immediately. However, if the decision is taken not to start the transfusion then INTACT units can be returned to the Blood Bank if done so within **30 minutes**.

13.13.2 The time of return must be noted on the pink form and the blood transfusion staff should be advised verbally.

13.13.3 Units which have been out of controlled storage for more than 30 minutes, or any opened or ‘spiked’ units must **not** be returned to the blood fridge. Please contact the transfusion laboratory, who will give advice on disposal.

13.14 **Dealing with opened pre-packaged products**

When administering pre-packaged products e.g. Human Albumin Solution, anti D, Factor VIII etc., it is not good practice to pierce the bottle, draw off some of the contents and then leave the remainder lying around. This poses a number of risks and could be extremely dangerous because of:

- Lack of temperature control.
- Introduction of bacterial contamination.
- Lack of an audit trail if the product is shared between patients.

All such products should be used within 3 hours of opening the bottle, for the patient they have been prescribed for, and the remainder (if any) disposed of as clinical waste. If you have any doubts about how long a product has been out of temperature control, please contact the Blood Transfusion laboratory on ext. 8451/2.

13.15 **On completion of the Transfusion**

When disposing of used transfusion units:-

- Carefully remove the used bag from the giving set.
- If changing or disposing of the giving set, place the whole set in a sharps bin but **do not** cut off the spike.
- If there is a risk of residual component leaking from the used bag, seal with a purple bung (available from transfusion).
- Keep all used bags for 24 hours after the transfusion has finished, in case needed in the investigation of a suspected transfusion reaction or other adverse event. They should then be disposed of as per the trust waste management policy- available on the intranet.
- Flushing through the remainder of the blood in the line (which holds approx. 30mls) with 0.9% Sodium Chloride is unnecessary.
- The start and finish times of each unit must be clearly indicated on the blood products prescription chart.
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13.16 Traceability of blood units

In order to maintain full traceability of blood products, and to comply with the Blood Safety & Quality Regulations 2005, if any or all of a unit is used, the signed traceability tag must be returned to the transfusion laboratory. If any tags are missing, evidence of use of the unit (for instance a copy of the prescription chart) must be provided to transfusion.

14. Patient care and monitoring during transfusion of blood or blood products

14.1 Location

14.1.1 Patients undergoing a transfusion should be cared for in an area where they can be conveniently monitored by those responsible for their care.

14.1.2 Transfusion must only take place when there are enough staff available to monitor the patient and when the patient can be readily observed. If it is planned to transfer a patient between care settings (e.g. to another hospital, ward or department) a risk assessment must be performed to assess whether the transfusion should be delayed until the transfer is complete. If the patient has to be transferred with a transfusion in progress, they must be accompanied by a doctor, registered nurse, midwife or ODP, in case of adverse reaction during transfer.

14.2 Monitoring and Clinical Observations

14.2.1 Observation and monitoring of the patient during a transfusion is essential if adverse reactions to the transfusion are to be quickly identified and managed. Regular visual observation of the patient must take place throughout the transfusion episode.

14.2.2 Patients should be informed of potential side effects to transfusion that they may experience. It is important to ensure that patients know to report feeling unwell or any potential symptoms of an adverse reaction (e.g. shivering, rashes, flushing, shortness of breath, pain at transfusion site, loin pain or feeling generally unwell) to the person caring for them immediately. A means of attracting attention (i.e. a call bell) should be readily available for use by the patient as appropriate. Special care should be taken in patients who are unable to report symptoms that would raise suspicion of a developing transfusion reaction, because they are unconscious / sedated, too young, confused or there is a communication barrier. For these patients, more frequent observations may be required.

14.2.3 A regular check should be made on the rate of transfusion to ensure that this is proceeding as prescribed

14.2.4 As a minimum, the patient’s temperature, pulse, blood pressure and respiratory rate must be measured and recorded:
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- **Before** the start of each unit (no more than 1 hour before the unit commences).
- **15 minutes** after the start of each unit and *then as frequently as clinically indicated*. This standard is based on British Committee for Standards in Haematology (BCSH) guidelines which state that the first set of observations after the start of the unit being transfused should be carried out at 15 minutes. However, the National Comparative Audit of Blood Transfusion (2011) advise that although early observations are important to detect any acute transfusion reactions, clinical practice is such that neither the timing of nor the recording of the timing of the observations can be that precise. Therefore for audit purposes, observations taken no more than 30 minutes after the start of transfusion, while outside the BCSH guideline, are considered acceptable.
- **At the end** of each unit (no more than 1 hour after the unit finishes).

If another unit is to follow, and there is no break in transfusion, these readings can be used as the pre transfusion observations check for the next unit.

14.2.5 Patients who are on continuous electronic monitoring must have the pre transfusion, 15 minute and post transfusion observations noted.

14.2.6 Inpatients should be observed for late reactions over the next 24 hours. Day care patients must be advised to report symptoms developing after discharge from hospital, and given a contact number for clinical advice.

14.3 **Documentation of transfusion**

The transfusion episode must be documented in the patient’s notes. The type of blood product given, volume transfused, and commencement and completion times must be recorded. A transfusion care plan is available (see Appendix 6).

14.4 **Overnight transfusion (20:00 to 08:00)**

14.4.1 Transfusions must be given with the same attention to patient observations whatever the time of day or night.

14.4.2 Overnight transfusions must only proceed where there is a clear clinical indication that it is necessary to transfuse at night, and as long as the staffing is sufficient to permit the patient to be cared for according to the standards defined in the BCSH guideline on administration of blood components 2009. These standards include adequate pre-transfusion assessment, observations at 15 minutes after the start of each component and regular visual observation throughout the transfusion.

14.4.3 Decisions to transfuse should not be made simply on the basis of the haemoglobin result, but taking into account the full medical history, the patient’s current medical condition and the wishes of the patient. Junior medical staff should review the patient, consult the case notes and take advice from senior medical staff before deciding to transfuse at night, particularly when the team
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concerned are not familiar with the patient’s case and are not responsible for the overall management plan.

14.4.4 Consideration should be given to transfusion of 1 unit to allay symptoms, with the remaining units being given the next day.

14.4.5 The reason for making the decision to transfuse at night, beneficial effects and any adverse incidents must be recorded in the medical notes.

14.4.6 Clinicians must also ensure that any blood results are reviewed in good time to enable products to be requested and transfused within daytime hours whenever possible.

15. Transfusion Reactions

15.1 Management of acute transfusion reactions

15.1.1 Acute transfusion reactions vary in severity from minor febrile reactions to life-threatening allergic, haemolytic or hypotensive events. To minimise the risk of harm, early identification of reactions and rapid clinical assessment is essential.

15.1.2 The patient’s temperature, pulse, blood pressure and respiratory rate must be recorded before the start of each unit as a baseline reading, and if the patient is unwell or observations are deteriorate, an adverse reaction to the blood component should be suspected.

15.1.3 Symptoms and signs of an acute transfusion reaction include: fever, chills, rigors, tachycardia, hyper-hypotension, collapse, flushing, urticaria, pain (bone, muscle, chest abdominal), respiratory distress, nausea and ‘general malaise’ (previously described as a ‘feeling of impending doom’).

15.1.4 If an acute transfusion reaction is suspected:

- **Stop the transfusion** and inform medical staff. Maintain venous access.
- **Assess** – rapid clinical assessment of the patient (Airway- Breathing Circulation).
- **Check** – the patient’s identity must be rechecked against the blood.
- **Inspect** – the unit for turbidity, clots, discolouration.

15.2 Management of a mild acute transfusion reaction

This is defined as an isolated temperature of 38-39°C or rise of 1-2 °C from baseline or pruritis/a rash only (see Management of Acute Transfusion Reactions in associated documents on SharePoint)

**The following actions should be taken:**

- **Stop the transfusion.** Maintain venous access.
- Inform medical staff.
- Assess the patient, check patient ID and inspect the unit.
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- Consider symptomatic treatment (e.g.: paracetamol/antihistamine).
- Monitor patient more frequently (TPR, BP, O₂ sats, urine output).
- Continue transfusion, but if symptoms worsen manage as for moderate transfusion reaction.
- Document in patient notes. Report to transfusion laboratory only if recurrent.

15.3 Management of a moderate acute transfusion reaction

This is defined as a temperature of 39°C or above or a rise of 2°C or more above baseline and/or other symptoms – but not pruritus/rash only (see Management of Acute Transfusion Reactions in associated documents on SharePoint).

The following actions should be taken:-

- **Stop the transfusion.** Maintain venous access.
- Inform medical staff.
- Assess the patient, check patient ID and inspect the unit.
- Monitor the patient more frequently (TPR, BP, O₂ sats, urine output).
- Review patients underlying condition and transfusion history.

- **If signs and symptoms are not consistent** with the patient’s condition or transfusion history, consider bacterial contamination of the component and undertake appropriate investigations (including blood cultures). **Discontinue the transfusion and report urgently to the transfusion lab.** Complete a transfusion adverse events form (see Transfusion Related Adverse Events Report form in associated documents on SharePoint). Return required samples and remains of all donor bags to the transfusion lab. Complete a DATIX Adverse event form.

- If consistent with the patient’s history or condition, consider continuation of transfusion at a slower rate, and appropriate symptomatic treatment. If considered transfusion related, report urgently to the lab and complete a transfusion adverse event form (see Transfusion Related Adverse Events Report form in associated documents on SharePoint) and return required samples and remains of all donor bags to the transfusion laboratory. Complete a DATIX Adverse event form.

15.4 Management of a severe or life threatening acute transfusion reaction

Evidence of life threatening problems- Airway Breathing or Circulatory problems, and/or wrong blood given and/or evidence of a contaminated unit (see Management of Acute Transfusion Reactions in associated documents on SharePoint).

The following actions should be taken:-

- **Stop the transfusion.** Maintain venous access.
- Call for urgent medical help- use 2222.
- Initiate resuscitation- ABC.
- Assess the patient, check patient ID and inspect the unit.
- Monitor the patient (TPR, BP, O₂ sats, urine output).
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- Fluid resuscitation (normal 0.9% saline) as appropriate guided by BP, pulse, urine output (catheterise if necessary).
- **Report urgently to the transfusion lab.** Complete a transfusion adverse events form (see Transfusion Related Adverse Events Report form in associated documents on SharePoint). Return required samples and remains of all donor bags to the transfusion laboratory.
- If likely anaphylaxis/severe allergy, follow anaphylaxis treatment pathway.
- If bacterial contamination likely follow sepsis pathway.
- If haemorrhage likely to be causing hypotension, fluid resuscitate/continue transfusion.
- Consider if Transfusion Associated Circulatory Overload (TACO) likely.
- Complete a DATIX Adverse event form.

16. **Management and reporting of adverse events**

16.1 **Reporting of adverse events** (See appendix A for flowchart on incident reporting)

16.1.1 This section of the policy outlines the management of dealing with serious transfusion related incidents and is in accordance with the Blood Safety and Quality Regulations 2005

16.1.2 The objectives of adverse event reporting are:
- To ensure that correct action is taken to highlight any adverse event following or concerned with blood transfusion, and report it to the correct body.
- To ensure such events are appropriately investigated or audited.
- To allow implementation of required actions in order to prevent re-occurrence.
- The aim is not to apportion blame but rather to learn from experience and improve practice accordingly.

16.1.3 The Trust is committed to reducing errors in the administration of blood and blood components and fully supports the guidelines set out by the British Committee for Standards in Haematology (BCSH) and the recommendations of Serious Hazards of Transfusion (SHOT) report.

16.1.4 In the event of a serious adverse transfusion incident, an open and honest culture must be maintained between the Trust and the patient/relatives. Furthermore, In addition to investigating the root cause, the Trust also has a duty to offer support for the employee(s) involved.

16.1.5 Any serious adverse reactions observed during or after transfusion which may be attributable to the quality or safety of blood or blood components issued for transfusion must be reported to the Blood Transfusion Laboratory who will report the incident to the Medicines & Healthcare products Regulatory Agency (MHRA), as is required by law.
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16.2 Responsibilities for reporting adverse events

16.2.1 All staff have a duty to report any transfusion incidents/near misses regardless of the impact of the incident on the person directly involved.

16.2.2 Transfusion incidents/near misses must be reported as soon as possible after the incident has occurred, and a trust adverse event form must be submitted via DATIX.

16.2.3 The Transfusion Laboratory must be informed immediately of any suspected moderate/severe transfusion reaction, near miss or other serious adverse event.

16.2.4 It is the responsibility of the person who discovers any transfusion near miss, or adverse event to report it to the Transfusion Laboratory, and to complete a trust adverse event report via DATIX.

16.2.5 If a transfusion reaction is suspected, it is the responsibility of the clinician who manages the transfusion reaction to ensure that it is reported to the Transfusion Laboratory immediately, and to complete a trust adverse reaction form and adverse event report via DATIX.

16.2.6 All DATIX logged adverse events will be recorded as non-conformances onto the laboratory’s Q-Pulse Conformance Management System database. As part of the closure procedure for these non-conformances the incident will be investigated and the root cause(s) considered by the Hospital Transfusion Team (HTT) or Transfusion Operational Management Team (TOMT) prior to recommending suitable corrective action.

16.2.7 The suggested corrective actions must be implemented in order to reduce the possibility of a similar occurrence.

16.2.8 The HTT and TOMT will periodically audit practice to ensure that the recommended changes are implemented and are being maintained.

16.2.9 Where appropriate, the near-miss, adverse reaction or adverse event will be reported to the relevant external bodies e.g. SHOT, SABRE/MHRA.

16.3 Definitions of an adverse event

16.3.1 Minor Non-compliance (MNC)

Errors which occurred in the transfusion chain that were not detected at the initial checking stage after the error was made, but were identified at the second checking stage. For example, if a blood sample was labelled incorrectly on the ward, but the error was detected by the BMS prior to testing or traceability tags are not returned. These errors are reportable internally only.
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16.3.2 SHOT Reportable Near-miss Incident (SHOT NM)

Near-miss incidents are reportable by the transfusion laboratory to the Serious Hazards of Transfusion Scheme. These include, but are not restricted to:

- Any error which, if undetected, could result in the determination of a wrong blood group.
- The issue of the incorrect component (e.g.: non irradiated red cells).
- The collection of an incorrect, inappropriate or unsuitable component, but which was recognised before transfusion took place.

16.3.3 Serious Adverse Reactions (SAR)

This constitutes ‘an unintended response in a patient that is associated with the Collection or transfusion of blood or blood components that is fatal, life threatening, disabling or incapacitating, or which results in or prolongs hospitalisation or morbidity’ (MHRA 2005)

This can include:

- Immunological haemolysis due to ABO incompatibility.
- Immunological haemolysis due to other allo-antibody.
- Non – immunological haemolysis.
- Transfusion transmitted bacterial infection.
- Anaphylaxis/hypersensitivity.
- Transfusion related acute lung injury (TRALI).
- Transfusion – transmitted viral infection, prion infection.
- Transfusion – transmitted parasitic infection (i.e. Malaria).
- Post transfusion purpura (PTP).
- Graft versus host disease (GVHD).
- Other serious reaction(s) (i.e. transfusion related circulatory overload).

Any of the above would require submission via SABRE (Serious adverse blood reactions and events) to the MHRA (Medicines and Healthcare products Regulatory Agency). A trust adverse event report form must also be submitted via DATIX so that local investigation can be carried out in accordance with the Trust Incident Reporting and Management Policy.

16.3.4 Serious Adverse Events (SAE)

This constitutes ‘any untoward occurrence associated with the collection, testing, processing, storage and distribution, of blood or blood components that might lead to death or life threatening, disabling or incapacitating conditions for patients or which results in, or prolongs hospitalisation or morbidity.’ (MHRA 2005)

These include (but are not restricted to):

- Incorrect group given (e.g. RhD positive to RhD Negative patient).
- Incompatible ABO group given, but no adverse reaction.
- CMV or Irradiated Blood requested but not given.
- Expired unit transfused.
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- Cold chain failure- blood out of temperature control.
- Unit mislabelled.
- Fate of unit not recorded, or transfusion tag not returned.

If the event is associated with testing, processing, storage or distribution of blood products this would require notifying the MHRA via SABRE. If the event is of a clinical nature it should be reported to SHOT via the SABRE reporting mechanism. All of the above categories should also instigate the submission of a trust adverse event report via DATIX so that local investigation can be carried out. All serious adverse events, reactions and SHOT reportable near misses must undergo a full root cause analysis.

16.4 **National reporting of adverse effects of transfusion**

16.4.1 **SHOT – Serious Hazards of Transfusion.**

This is a confidential reporting system for serious adverse events during or following transfusion, and also ‘near misses’. This data is collated, and an annual report is published.

16.4.2 **SABRE - Serious Adverse Blood Reactions and Events**

This is a mandatory reporting agency, to which all serious adverse reactions and events must be reported to comply with the trust legal responsibilities under the Blood Safety & Quality Regulations 2005.

16.4.3 Reporting to both of these agencies is made via the Transfusion Operational Management Team (TOMT) and so it is important that the Blood Transfusion laboratory is informed **immediately** of any actual/suspected Blood Transfusion adverse event. Summaries of annual reports are available on the Intranet.

16.4.4 Adverse events associated with the administration of licensed fractionated plasma derivatives e.g. albumin, immunoglobulin and coagulation factor concentrates, should be reported to the MHRA using the ‘Yellow Card’ system.

17. **Additional advice for paediatric red cell transfusions**

17.1 **Children on regular transfusion programmes**

17.1.1 There are only small numbers of local children on regular transfusion programmes. They should all be under a shared care arrangement with a tertiary paediatric haematology centre-most often Addenbrookes Hospital. The most likely diagnoses are thalassaemia major and bone marrow failure syndromes e.g. Diamond Blackfan syndrome.
17.1.2 Pre transfusion blood tests

Children on regular transfusion programmes require a FBC and crossmatch. The timing of their crossmatch will depend on their previous transfusion history. National guidelines state that to ensure that the specimen used for compatibility testing is representative of a patient's current immune status; serological studies should be performed using a blood sample collected no more than 3 days in advance of the actual transfusion when the patient has been transfused or pregnant within the preceding 3 months.

17.1.3 Great care should be taken with labelling of samples. Samples must be labelled with the patient's full name (with correct spelling), date of birth and hospital number. Any samples with missing, illegible or incorrect information will be rejected.

17.1.4 Samples must be labelled at the patient’s side immediately after being taken. Check any special requirements e.g.: if CMV negative, Hepatitis E negative (HEV) or irradiated blood is needed. Discuss with the transfusion lab if unsure (the lab can advise what has been issued on previous occasions but may not be aware of any recent diagnosis or change of treatment).

17.1.5 Patients on iron chelation will need additional tests every three months for:
- Ferritin.
- LFT’s.
- Urea and Electrolytes.
- Creatinine.
- Random glucose.
- Annual thyroid function and calcium level.

Check if the patient is up to date with these tests and if not they can be done at the same time as blood is taken for FBC and cross match.

17.2 Prescription of red cells

17.2.1 Children with thalassaemia major require their Hb to be maintained above 95 to 100g/L to optimize normal growth and development and inhibit bone marrow expansion. Transfusion frequency is usually every 3-4 weeks.

17.2.2 Children with other diagnoses may have different target Hb depending on their diagnosis. Check for any guidance from their notes or ask their local Consultant if unsure. If their local consultant is not available or if uncertainty exists, contact their tertiary centre haematology team for advice.

17.2.3 Transfusion should be prescribed carefully in mls, not units. The formula for volume of blood to be transfused:-
- Packed cells (mls) = weight (kg) x Hb rise required (g/L) x 0.4.
- The transfusion is given at a rate of 5ml/kg/hour (up to a maximum of 150mls/hour).
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- Example: 20kg child with current Hb of 70g/L and target Hb of 110g/L 20 x (110-70) x 0.4 = 320 mls of red cells running at 5mls/kg/hour =100mls/hour.

17.2.4 According to hospital policy, transfusion should be avoided at night, unless there is an acute clinical need and staffing is sufficient to permit transfusion according to the standards defined in the BCSH guideline on administration of blood components 2009.

17.2.5 Transfusion must be completed within 4 hours of the time the blood was removed from the blood fridge.

17.3 Other expected standards

17.3.1 As these children will have long term attendance at hospital for transfusions, every attempt must be made to have them seen and cannulated promptly by an experienced doctor or nurse.

17.3.2 Good transfusion practice should be followed as per hospital transfusion policy. They should have pre transfusion observations recorded - minimum of pulse, temperature, blood pressure and respiratory rate. These should be repeated 15 minutes after the transfusion is commenced and at the end of each unit. The patient must be observed throughout the transfusion for signs of reaction. If any signs occur, the blood must be stopped immediately and medical advice sought.

17.3.3 Each attendance for transfusion should be documented in the notes, and a discharge letter given. Advice must be given regarding how to contact the hospital if there are any signs of reaction when discharged from hospital.

17.3.4 A note of the benefit or lack of benefit of the transfusion should be made.

17.3.5 Post transfusion Hb check. This is not routinely required after each transfusion, but should be done if the patient’s consultant or haematologist requests. Check notes for individual plans.

17.4 Paediatric Red Cell Transfusions in Homozygous Sickle Cell Anaemia

17.4.1 Most children with homozygous sickle cell disease are not receiving regular transfusions. From the age of 2 years onwards patients with homozygous sickle cell disease should be referred for transcranial Doppler studies. Some children with raised cerebral blood flow velocities are considered for a regular transfusion programme.

17.4.2 Since 2006 there has been a national neonatal screening programme for sickle cell anaemia, so babies born in the UK after then should have been picked up in the neonatal period.

17.4.3 The parents should have received advice on general measures to reduce the frequency and severity of sickling, which is avoidance of cold, dehydration,
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hypoxia and aggressive treatment of intercurrent infections. They should all have received pneumococcal vaccination (prevenar at 2, 4 and 13 months then pneumovax at 2,7,12 and 17 years). They should have an annual flu vaccination from 6 months of age, and be offered a course of Hep B immunization if not immune. By age 3 months they should be receiving regular prophylactic penicillin.

17.4.4 The most common reason for hospital admission in sickle cell anaemia is due to a painful crisis. The management is analgesia, hydration and treating any precipitating infection. Such children should have open access to their local paediatric ward

17.4.5 Complications requiring top up or exchange transfusion.

Transfusions should not be undertaken without careful consideration of the benefits and risks. There is an incidence of about 18% of alloimmunisation following blood transfusion in the sickle population-two thirds of the antibodies described are in the Rh or Kell systems. There is an incidence of delayed haemolytic transfusion reactions in sickle cell disease of between 4 and 22% - significantly higher than in other patients. Informed consent from the parents, or child where appropriate, should always be obtained prior to transfusion.

There are certain situations where an acute blood transfusion will be necessary.

- **Acute splenic sequestration** - i.e. acute fall of haemoglobin of more than 20g/L below steady state, markedly elevated retic count together with an acute increase in spleen size. This is a serious complication of sickle cell disease, and if unrecognized causes significant mortality. Mortality rates can be reduced substantially by parental education, regular palpation of the abdomen at home to detect early signs of splenic enlargement and prompt intervention with transfusion. **Target Hb is to the steady state Hb level.**

- **Temporary red cell aplasia** (usually due to parvovirus B19 infection). This is characterized by a drop in haemoglobin over about 1 week, often to levels as low as 30g/L. It may be associated with fever, headache and abdominal pain. In contrast to acute splenic sequestration the retic count will be very low, and IgM for parvovirus B19 will be present. Recovery may be spontaneous, but a top up transfusion is usually indicated. **Target Hb is to steady state Hb level.**

- **Acute sickle chest syndrome.** This is characterized by pleuritic chest pain, fever, abnormal chest examination and new pulmonary infiltrates on X-ray. Early intervention with analgesia, oxygen, physiotherapy, antibiotics and blood transfusion can significantly reduce morbidity and mortality. **Aim to achieve HbS level below 30% and Hb 100-110g/L** Consideration should be given to exchange transfusion.

- **Acute neurological complications.** Cerebrovascular disease, particularly proximal vessel stenosis predisposes children to acute cerebral infarction. Occasionally older children present with subarachnoid or intracerebral bleeds related to cerebral artery aneurysms. Acute ischaemic events require urgent
CAUTION: Refer to the Document Library for the most recent version of this policy

Investigation with CT and/or MRI scan to define the extent and exclude a haemorrhagic component. This should be followed by exchange transfusion as soon as possible to reduce the risk of progression of the lesion. Aim to achieve HbS level below 30% and Hb 100-110g/L. Royal College Guidelines on the management of acute stroke in childhood should be followed.

- **Prior to a surgical procedure.** A minor procedure such as circumcision or tooth extraction can usually be done safely without a transfusion. (Extra oxygen may be required). With other elective procedures a blood transfusion may be necessary as a day case a few days prior to the surgery, particularly if the child is prone to complications. If an emergency surgical procedure is required a pre-op transfusion is likely to be required.

17.4.6 **Indications for regular long term transfusion in sickle cell disease**

Decisions about regular long term transfusions should be made in consultation with the patient/carers and Paediatric Haematologist:

- Primary and secondary stroke prevention.
- Recurrent acute chest syndrome not prevented by hydroxyurea.
- Progressive organ failure.

Please discuss with seniors and have a low threshold for discussion with tertiary team.
Our patients will usually be having shared care with Addenbrookes Consultant Paediatric Haematologists- contact via Addenbrookes switchboard.

17.5 **Guidelines for Red Blood Cell (RBC) Transfusion Thresholds for Preterm Neonates**

<table>
<thead>
<tr>
<th>Assisted Ventilation</th>
<th>CPAP</th>
<th>Breathing Spontaneously</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 28 days</td>
<td>≥ 28 days</td>
<td>&lt; 28 days</td>
</tr>
<tr>
<td>FiO₂ ≥ 0.3</td>
<td>FiO₂ &lt; 0.3</td>
<td></td>
</tr>
<tr>
<td>Hb &lt; 120 g/L or PCV &lt; 0.4</td>
<td>Hb &lt; 110 g/L or PCV &lt; 0.35</td>
<td>Hb &lt; 100 g/L or PCV &lt; 0.30</td>
</tr>
</tbody>
</table>

Red cell transfusion may be considered at higher thresholds than the above for neonates with:

- Hypovolaemia (unresponsive to crystalloid infusion).
- Septic Shock.
- Necrotising enterocolitis.
- Undergoing/recovering from major surgery.
**CAUTION:** Refer to the Document Library for the most recent version of this policy

RBC transfusions

Dose:

i) 10 - 20 ml/kg

ii) Desired rise in Hb (g/L) x 0.4 x Weight (kg) [aim for a Hb of 140-160g/L]

Lasix: avoid regular prescription.

Information should be given in the notes as to the indication for a transfusion.

A note should be made of the benefit or lack of benefit for all blood transfusions given.

A post transfusion Hb should be performed. (Murray & Roberts 2004).

17.6 Guideline for Platelet Transfusion Thresholds for Neonates

<table>
<thead>
<tr>
<th>Platelet Count (x 10⁹/L)</th>
<th>Non-Bleeding Neonate</th>
<th>Bleeding Neonate</th>
<th>Neonatal Alloimmune Thrombocytopenia (proven or suspected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 30</td>
<td>Consider transfusion in all patients</td>
<td>Transfuse.</td>
<td>Transfuse (with Human Platelet Antigen (HPA) compatible platelets)</td>
</tr>
<tr>
<td>30 – 49</td>
<td>Do not transfuse if clinical stable.</td>
<td>Transfuse.</td>
<td>Transfuse (with Human Platelet Antigen (HPA) compatible platelets)</td>
</tr>
<tr>
<td></td>
<td>Consider transfusion if:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- &lt; 1000 g and &lt; 1 week of age</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Clinically unstable (e.g., fluctuating BP)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>- Previous major bleeding tendency (e.g. Grade 3 – 4 IVH)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Current minor bleeding (e.g., petechiae, puncture site oozing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Concurrent coagulopathy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Requires surgery or exchange transfusion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 – 99</td>
<td>Do not transfuse.</td>
<td>Transfuse.</td>
<td>Transfuse (with Human Platelet Antigen (HPA) compatible platelets) if major bleeding present</td>
</tr>
</tbody>
</table>
**CAUTION:** Refer to the Document Library for the most recent version of this policy

| > 99  | Do not transfuse. | Do not transfuse. | Do not transfuse. |


18. **Endorsement**

The policy will be approved by the Hospital Transfusion Committee & endorsed by the Quality Governance Operational Committee.

19. **Distribution**

The policy will be recorded on SharePoint.

20. **References**


Blood Transfusion Policy
Central Index Number: C0160 Version 10 Page 46 of 59
CAUTION: Refer to the Document Library for the most recent version of this policy


21. Associated Documents

- Clinical Guidelines for Red Cell Transfusion in adults (C0162)
- Platelet transfusion- Guideline for practice (C0331)
- FFP transfusion- Guideline for practice (C0329)
- Cryoprecipitate transfusion- Guideline for practice (C0330)
- Guidelines on the use of OCTAPLEX® (Prothrombin complex concentrate/PCC) for rapid reversal of warfarin in association with life threatening bleeding (C0254)
- Policy for the use of recombinant factor VIIa (rVIIa) in the treatment of uncontrolled haemorrhage (C0255)
- Policy for the use of Cytomegalovirus (CMV) negative blood products (C0661)
- Policy on consent to treatment (C0412)
- Policy for treatment of Jehovah’s Witnesses (C0413)
- Policy on advance decisions (C0370)
- Maternity Guidelines- Section 3.09 Blood Transfusion (0487)
- Policy for the use of Irradiated blood products (C662)
- Policy for Assessment of Staff Collecting Blood components for transfusion and caring for a patient having a transfusion (C0175)
- Management of major haemorrhage (C0185)
- Policy and assessment for clinicians in the administering of intravenous (IV) drugs (C0019)
- Guideline for Assessment of Clinicians Performing Venepuncture (C0022)
Appendix 1 – Flowchart for staff reporting Transfusion Incidents

Complete DATIX incident form and / or trust transfusion reaction form

If incident is a serious adverse event or moderate/ severe transfusion reaction phone the transfusion laboratory immediately on Ext 8451 or bleep 1151 out of hours

Incident categorised and discussed by TOMT or HTT

SHOT
NM

SAE

SAR

MNC

Report to SHOT/ SABRE via SABRE website

Report to appropriate forum (e.g.: HTC, Directorate meetings, NMAG, QGOC)

Investigation completed and corrective action /preventative actions logged via Q-Pulse within 1 month of event being recorded
Appendix 2 – Reporting a SAR or a SAE to SABRE

Using SABRE to report serious adverse events and serious adverse reactions to MHRA and SHOT

Has there been a serious adverse reaction in a donor or recipient, or a serious adverse event?

Yes

Is an SAE or SAR report to MHRA required?

Yes

Hospital Transfusion Team/Blood Bank and Blood Establishment agree lead for reporting, investigation and confirmation.

No

Use SABRE to submit report to SHOT only

Draft and submit SAR / SAE Notification via SABRE to MHRA

Indicate whether SAR / SAE report to be made available to SHOT (recommended)

Yes

Undertake and complete local investigation of SAR / SAE

Yes

Draft and submit confirmation of SAR / SAE via SABRE

Tick box in SABRE to report to SHOT as well as MHRA
Appendix 3 Procedure for transport of blood units to the Emergency Department for urgent/emergency transfusion

Patient in ED needs urgent or emergency blood transfusion

- Take a blood sample for cross match & send to Transfusion Laboratory via air tube
- Ring Transfusion on 8451/2 (Bleep 1151 out of hours) to inform them of urgent/emergency cross match
- Ask if a confirmatory blood group sample needed and take/send as necessary according to protocol.

How urgently is the blood needed?
- **If desperate** - use emergency O RhD Negative blood (available immediately)
- **Very urgent** - use group specific blood (issued within 10 minutes from receipt of sample)
- Fully cross matched blood will be available 50 minutes from receipt of sample

*In major haemorrhage situations (blood loss >150ml/min) activate massive blood loss protocol – see policy on intranet*

- Ask the transfusion lab to pack the blood units required in a transport box, for transport to ED.
- Give the name of the requesting Dr and the Nurse taking responsibility for the blood to transfusion lab.

- The transfusion BMS will pack blood units into a transport box and complete the tracking log.
- The pink and the yellow copy of the compatibility forms will be put into the box with the units.
- A laminated sheet with date & time box packed and time by which blood needs to be returned if not used, to be placed in front pocket of box

ED porter must contact the transfusion lab to inform them they are on their way to collect the blood box. The porter must take the ED record card with them to the lab so that patient ID can be checked, to ensure the correct units are collected. *(NB not necessary if collecting emergency O RhD negative blood, as this is not patient specific).*

The transport box is taken to Emergency Department and handed to the named nurse, who now takes responsibility for the blood.

Blood used

- Take units from box one at a time
- Sign front of pink and yellow forms next to each unit used
- Return empty box, pink form and traceability tags to the transfusion lab as soon as possible
- Yellow form file with ED record card
- BMS will note units used & files pink copy/tags

Blood not used (or some units not used)

- Return box, pink form and unused units to transfusion lab within 90 minutes of the time the box was originally packed. Contact lab to arrange return of box.
- Return traceability tags for any used units to the transfusion Lab as soon as possible
- Yellow copy to ED record card
- BMS returns units to stock and completes tracking log

Patient transferred to another clinical area or hospital

- Inform transfusion Lab immediately
- Do not use this box to send blood to another area (including theatre) or out of the hospital without authorisation from the lab.

If the transfusion lab has not received the box / blood back within 90 minutes of issue, the BMS will ring the Emergency Department Coordinator on Ext 8656 for further information.
CAUTION: Refer to the Document Library for the most recent version of this policy

Appendix 4 Out of Hospital Transfusions

The information and guidance contained in the trust transfusion policy will also apply to out of hospital transfusions.
In addition, the following must be considered

Patient selection
Out of hospital transfusion is for patients with an established diagnosis, such as:

- Haematological disorders
- Malignant conditions
- Patients who require regular transfusion and find it more convenient to have their transfusions in the community.

Patients must have had transfusions in hospital without adverse effect.

Exclusions
Patients who

- Have had a history of severe cardiac failure
- Who require hydrocortisone or chlorphenamine (piriton) to be given with the transfusion

are not suitable for out of hospital transfusion.

Transport of blood
Units taken for use out of the hospital must be packed in a validated transport box with cool packs. The storage temperature for these boxes is validated for a total of 4 hours and units must not be used if this time limit is exceeded. A maximum of 2 units per patient may be put into the box.

When units are removed from the transport box, the remaining unit(s) must be kept in the box along with the cool packs, the insulated lid must be replaced and the box closed. This is to ensure the remaining units are kept at the correct temperature.

Transfusion of the remaining unit(s) must commence within 4 hours of the box being packed.

The time each unit is removed from the box must be recorded on the front of the pink and the yellow copy of the compatibility form.

Care of the patient
Blood must only be administered by staff who have completed training and a competency assessment in transfusion.

The patient should be fully informed of potential reactions, how long the transfusion will take and what observations will be taken during this procedure. The National Blood and Transplant Service information leaflet ‘Will I need a blood transfusion’ should be offered.

Verification of patient identity is a vital part of the transfusion process. Patients having a transfusion outside the hospital setting must wear an identity band, which must be pre prepared in hospital, and applied before the transfusion commences.
CAUTION: Refer to the Document Library for the most recent version of this policy

The following details must be checked by the nurse administering the transfusion before every unit:

The patients
- Full Name
- Date of Birth
- Hospital / NHS number

Must agree with the information on the
- patients identity band
- label on the unit of blood
- pink and yellow copy of the compatibility form

As a second check of identity, the patient must be asked to verbally confirm their full name and date of birth.

The patient’s blood group should be the same as, or noted as compatible with, the donor group of the units provided.

Any special requirements (CMV negative and/or irradiation units) have been met.

The expiry date and condition of the unit should also be checked.

If there are any discrepancies, the unit must not be used, and the transfusion laboratory contacted immediately.

Temperature, pulse, blood pressure and respiratory rate must be recorded (as a minimum)
- Before the start of each unit
- 15 minutes after the transfusion starts
- At the end of each unit

The patient should be observed regularly throughout the transfusion, and asked to report any concerns immediately.

Each unit of blood should be given over 2 hours.

If the patient shows signs of a transfusion reaction, the transfusion must be stopped immediately, and medical advice sought. In an emergency, call 999 and arrange for an emergency ambulance to attend. The transfusion laboratory must also be informed of any possible transfusion reaction.

The patient must be advised of who to contact if they have any concerns or feel unwell post transfusion, in case of late adverse reactions.

All used transfusion bags should be returned to the transfusion laboratory in a sealed bag, and then kept for 24 hours in case of transfusion reaction.

Documentation The transfusion must be documented in the patient record.

The pink copy of the compatibility form and the completed traceability tags must be returned to the transfusion laboratory with the empty transport box as soon as possible after the transfusion is complete.
**Appendix 5 – Blood Transfusion care plan**

**Before transfusion commences – please confirm**

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Signature</th>
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</table>

- Transfusion has been discussed with the patient and consent obtained (unless emergency situation)
- The prescription has been completed correctly (including the special requirements list)
- The patient has suitable IV access
- All the equipment needed for transfusion has been obtained (including blood gving set)
- The patient is wearing an ID band

<table>
<thead>
<tr>
<th>For each unit</th>
<th>Initial</th>
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</thead>
<tbody>
<tr>
<td>Unit Number</td>
<td>1</td>
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<tr>
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<td>2</td>
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<td></td>
<td>3</td>
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<td>4</td>
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</table>

- Ensure IV access is patient and monitor throughout transfusion
- 2 members of staff must check that the information on the patient's ID band exactly matches the tag on the unit to be transfused
- If CMV negative or irradiated products are indicated on the prescription chart, check that the unit matches these requirements
- Record a set of baseline observations prior to commencing transfusion on transfusion chart and also on form overleaf
- Commence transfusion within 30 minutes of time of collection from blood bank if <30 minutes since collection please ring transfusion lab for advice
- Record time transfusion commenced on prescription chart

As appropriate, give the patient the patient’s call bell and ask them to report any concerns immediately. Make all relevant staff aware that transfusion has commenced, in case of reports of adverse reaction
- Ensure a further set of observations is recorded 15 minutes after the transfusion commences on transfusion chart and also on form overleaf. Further observations to be recorded as necessary according to patient’s condition
- Continue to monitor the patient throughout the transfusion. Ensuring transfusion is at prescribed rate and observing for signs of potential reaction
- **STOP THE TRANSFUSION IMMEDIATELY** if patient has any of the following: raised temperature, rigor, shortness of breath, tachycardia, tachypnoea, restlessness, pain, rash, nausea, agitation or feels generally unwell. Inform medical staff and transfusion laboratory and complete transfusion adverse events report form

<table>
<thead>
<tr>
<th>At the end of each unit</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>Record a set of observations on transfusion chart and also on form overleaf</td>
<td></td>
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</tr>
<tr>
<td>Record time transfusion finished on prescription chart</td>
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</tbody>
</table>

- Make sure transfusion variability has been signed and returned to the transfusion laboratory
- Return used transfusion bags for 24 hours, and then dispose of in clinical waste

**Transfusion Clinical Observations**

Observations should be recorded as frequently as clinically indicated, but at a minimum

- Before transfusion commences
- At 15 minutes
- At the end of the transfusion

The patient should also be checked regularly throughout the transfusion

<table>
<thead>
<tr>
<th>Date</th>
<th>Time unit commenced</th>
<th>Date</th>
<th>Time unit commenced</th>
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<tr>
<th>What were the patient's observations</th>
<th>Pre transfusion</th>
<th>At 15 minutes</th>
<th>Post transfusion</th>
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<th>What were the patient's observations</th>
<th>Pre transfusion</th>
<th>At 15 minutes</th>
<th>Post transfusion</th>
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<thead>
<tr>
<th>Unit 1 Component No.</th>
<th>Unit 2 Component No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Time unit commenced</td>
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<tr>
<th>BP</th>
<th>Pulse</th>
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<th>Date</th>
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<table>
<thead>
<tr>
<th>Observations reviewed by registered practitioner</th>
<th>Observations reviewed by registered practitioner</th>
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<tbody>
<tr>
<td>Practice's Signature</td>
<td>Practice's Signature</td>
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<tr>
<td>Print Name</td>
<td>Print Name</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Volume transfused =</th>
<th>Total Volume transfused =</th>
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<tr>
<th>Observations reviewed by registered practitioner</th>
<th>Observations reviewed by registered practitioner</th>
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<tbody>
<tr>
<td>Practice's Signature</td>
<td>Practice's Signature</td>
</tr>
<tr>
<td>Print Name</td>
<td>Print Name</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Volume transfused =</th>
<th>Total Volume transfused =</th>
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<tr>
<td>mls</td>
<td>mls</td>
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</table>
CAUTION: Refer to the Document Library for the most recent version of this policy

Appendix 6

Blood Transfusion – Non participation notice

According to the annual Serious Hazards of Transfusion (SHOT) report, serious incidents (including patient deaths) have occurred because staff inexperienced in the handling and administration of blood and blood products have been involved in the provision of blood transfusion.

Consequently, the Trust requires that all staff participating in blood transfusion must attend regular transfusion education updates, and complete appropriate competency assessments.

A register of all staff that have attended an education session and have completed a competency assessment in the handling and administration of blood products, is maintained by the Transfusion Coordinator.

If you cannot demonstrate documented transfusion education and instruction in the handling and administration of components, or if you are uncertain of whether you are on the trust transfusion register, you should not prescribe, instruct others to prescribe, draw blood samples for transfusion testing, transport (including collection from the blood fridge) or administer any blood or blood component.

You are asked to sign a copy of this notice, to confirm that you have read and understood the importance of this.

I confirm that I have read and understand the contents of this notice, and that I do not intend to participate in the provision of blood transfusion.

I understand that if circumstances change, and I become involved in the care of patients receiving a blood transfusion, I am responsible for arranging to receive the appropriate training and competency assessments.

Print name
Signature

Job Title
Ward/Department

Date

Please return to the Transfusion Coordinator, Pathology, Department 413e, PCH
CAUTION: Refer to the Document Library for the most recent version of this policy

Appendix 7
Compliance Monitoring Table
Policy Title: Blood Transfusion Policy
Author: Kaye Bowen Transfusion Practitioner

<table>
<thead>
<tr>
<th>Page/Section of Key Document</th>
<th>Key Control</th>
<th>Checks to be carried out to confirm compliance with the policy</th>
<th>How often the check will be carried out:</th>
<th>Responsible for carrying out the check:</th>
<th>Result of check reported to: (Responsible for also ensuring actions are developed to address any areas of non-compliance)</th>
<th>Frequency of reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>Process for requesting and testing samples for pre transfusion compatibility testing</td>
<td>Review of transfusion adverse events / laboratory error log including labelling and requesting errors</td>
<td>As a standing agenda item at Transfusion Operational Management Team (TOMT) meetings (at least 1 per month)</td>
<td>Transfusion Operational Management Team</td>
<td>Hospital Transfusion Committee</td>
<td>3 times per year</td>
</tr>
<tr>
<td>Page 11</td>
<td>Process for requesting and testing samples for pre transfusion compatibility testing</td>
<td>Review of transfusion adverse events / laboratory error log including labelling and requesting errors</td>
<td>As a standing agenda item at Transfusion Operational Management Team (TOMT) meetings (at least 1 per month)</td>
<td>Transfusion Operational Management Team</td>
<td>Hospital Transfusion Committee</td>
<td>3 times per year</td>
</tr>
<tr>
<td>Page 30</td>
<td>Management and reporting of transfusion adverse events/ reactions</td>
<td>Review of adverse events reported via DATIX</td>
<td>As a standing agenda item at Transfusion Operational Management Team (TOMT) meetings (at least 1 per month)</td>
<td>Transfusion Operational Management Team</td>
<td>Hospital Transfusion Committee</td>
<td>3 times per year</td>
</tr>
</tbody>
</table>
**Maintaining traceability records for units, as required by Blood Safety & Quality Regs (2005)**

| Page 25 | Review of traceability tag return and completion of tracking logs | 12 times a year (monthly) | Transfusion Coordinator | Hospital Transfusion Committee | 3 times per year |

| Page 21 | Observational spot check of bedside care to include completion of special requirements box, patient identification, recording of observations and staff training records for collecting/administering blood | At least 10 times per year | Transfusion Coordinator | Hospital Transfusion Committee | Annually |

| Page 8  | Monitoring of attendance at mandatory training sessions | 12 times a year (monthly) | Learning and Development | Learning and Development Team |
### Blood Transfusion Policy

**Central Index Number:** C0160

**Version 10**

**Page 57 of 59**

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**CAUTION:** Refer to the Document Library for the most recent version of this policy.

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| Name of function/service/strategy/policy/project (activity) to be assessed: | Blood Transfusion Policy |
| Name of principal author of policy: | Kaye Bowen, Transfusion Coordinator |
| Directorate: | Cancer & Diagnostics Date 24-Sep-16 |

**Function/service/strategy/policy/project (activity) aim or purpose:** To provide a clear framework and guidance for safe transfusion practice.

**Is this a new or existing activity?** Existing.

**What are the intended results of this activity?** Safe Transfusion Practice.

**How will you measure the activity outcome?** Patient and laboratory records.

**Who is intended to benefit from the activity?** All staff involved in transfusion and all patients requiring transfusion support.

**Identify any internal/external groups who have been consulted regarding this activity:** Hospital Transfusion Team and Committee, NHS Blood and Transplant.

---

**Use the table below to identify whether the activity could/does have a positive impact, a negative impact or no impact at all on either any or all of the equality groups specified.**

<table>
<thead>
<tr>
<th>Age</th>
<th>Disability</th>
<th>Ethnicity/Race</th>
<th>Gender</th>
<th>Religion/Religious Belief</th>
<th>Sexual Orientation</th>
<th>Gender Re-assignment</th>
<th>Marital &amp; Civil Partnership</th>
<th>Pregnancy &amp; Maternity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
</tbody>
</table>

**If there is either a Positive (Disability group assessed) or a Negative impact you must consider completing the Stage Two - Full Eqa Assessment Form to address or remove any significant potential/adverse impacts.**

**Decision to proceed (please select):** No, we have decided that it is not necessary to carry out a full Eqa.

**Reason for decision to proceed or not to full Eqa:** No impact on any groups.

---

**Executive Director/General Manager:** I confirm that I have been briefed and agree with the results of this Eqa.

<table>
<thead>
<tr>
<th>Name</th>
<th>SAROECH MANSHURINIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Title</td>
<td>A C D - PM fPhy</td>
</tr>
</tbody>
</table>

---

Please note the following: It is essential that this Eqa screening form is discussed by the management team and remains readily available for inspection. A copy of the Eqa to accompany the endorsed document must also be sent to the Compliance Lead (i.e. clinical, non-clinical policies etc.) for uploading onto SharePoint.
Quality Assurance Checklist - Version Number: 10

<table>
<thead>
<tr>
<th></th>
<th>Title of document</th>
<th>Type of document (e.g. policy, guidance)</th>
<th>Is the title clear and unambiguous?</th>
<th>Introduction</th>
<th>Are reasons for the development of the document clearly stated?</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blood Transfusion Policy (C0160)</td>
<td>Policy</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is there a standard front cover?</td>
<td>Are the key points identified?</td>
<td>Is the document in the correct format?</td>
<td>Is the purpose of the document clear?</td>
<td>Is the scope clearly stated?</td>
<td>Are the definitions clearly explained?</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Evidence Base</td>
<td>Is the type of evidence to support the document explicitly identified?</td>
<td>Are key references cited?</td>
<td>Are associated documents referenced?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Approval Route</td>
<td>Does the document identify which committee/group will approve it?</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Process to Monitor Compliance and Effectiveness</td>
<td>Are there measureable standards or KPIs to support the monitoring of compliance with the effectiveness of the document?</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Review Date</td>
<td>Is the review date identified?</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Equality and Diversity</td>
<td>Is a completed Equality Impact Assessment attached?</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

CAUTION: Refer to the Document Library for the most recent version of this policy
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<table>
<thead>
<tr>
<th>Compliance Team:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Date of Compliance Team approval 28/09/2016</td>
</tr>
<tr>
<td>2. Comments to author for any amendments</td>
</tr>
<tr>
<td>3. Name of compliance lead Jim Walker, Quality Governance &amp; Policies  Assistant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approval Committee: HTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the committee/group is happy to approve this document would the chair please sign below and send the document and the minutes from the approval committee to the author. To aid distribution all documentation should be sent electronically wherever possible.</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Signature</td>
</tr>
<tr>
<td>Comments</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endorsing Committee: QGOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the committee/group is happy to endorse this document would the chair please sign below and send the document and the minutes from the endorsing committee to the author. To aid distribution all documentation should be sent electronically wherever possible.</td>
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If answers to any of the above questions is ‘no’, then this document is not ready for endorsement, it needs further review.