Hospital Transfusion Policy

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Purpose

This policy sets out the processes involved in providing the highest standards of practice and that they are maintained and monitored for the transfusion process from blood sampling, to the laboratory process and the eventual administration to the patient.

Who should read this document?

All health care professionals who use blood and blood products supplied by the Blood Bank situated in Derriford Hospital in University Hospitals Plymouth NHS Trust.

Key Messages

Patient safety is paramount when receiving a blood or blood product transfusion.
No doctor, nurse or allied professional shall take part in any aspect of transfusion unless competent to do so.
Ensure a safe, appropriate and efficient transfusion service to all patients.
To provide transfusion advice to all staff and patients.
To consider alternatives to transfusion products wherever possible.

Core accountabilities

Owner: Specialist Practitioner of Transfusion
Review: Hospital Transfusion Team (HTT) and Hospital Transfusion committee (HTC)
Ratification: Medical Director
Dissemination: Transfusion Practitioners
Compliance: HTT and HTC

Links to other policies and procedures

See page ---- for full list of links

Version History

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The Trust is committed to creating a fully inclusive and accessible service. Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff. We will treat people with dignity and respect, promote equality and diversity and eliminate all forms of discrimination, regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/maternity.

An electronic version of this document is available on Trust Documents on StaffNET. Larger text, Braille and Audio versions can be made available upon request.
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## 1 Introduction

The Blood Bank Laboratory issues approximately 20,000 units of Red Blood cells per year and similar volumes of Blood Products (Plasma, Platelets, and Anti D and Clotting derivatives)

Blood and Blood products are stored and issued in line with MHRA regulations and guidance.

**The Key objectives of the service are:**

- Patient safety is paramount when receiving a blood or blood product transfusion.
- No doctor, nurse or allied professional shall take part in any aspect of transfusion unless competent to do so.
- Ensure a safe, appropriate and efficient transfusion service to all patients.
- To provide transfusion advice to all staff and patients.
- To consider alternatives to transfusion products wherever possible.

## 2 Purpose

This policy sets out the processes involved in providing the highest standards of practice and that they are maintained and monitored for the transfusion process of all blood and blood products (from blood sampling, to the laboratory process and the administration of the product to the patient.) Also ensuring, that alternatives to blood transfusion are considered on an individual patient basis.

This policy applies to all users who use the services of the Derriford Hospital Blood Bank. This policy has been produced with reference to;

- Serious Hazards of Transfusion (SHOT) 1996 to 2017
- Better Blood Transfusion (Health Service Circular 2007/001), Safe and Appropriate Use of Blood, December 2010
- NICE Guidelines 2015

Since 2014, All ABO incompatible red blood cell transfusions are classed as a Never Event, REGARDLESS of the outcome for the patient (previously it was classified as a never event only if the patient suffered serious harm or death from the ABO incompatible transfusion)

Management of Blood and Blood components are included as a specific standard by the Care Quality Commission (CQC); the trust requires assurance to be provided for the CQC.

The recommendations are based on current best practice that is subject to regular updates.
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4 Duties

- Ensure a safe, appropriate and efficient transfusion service to all patients.
- To provide transfusion advice to staff and patients.
- To consider alternatives to transfusion wherever possible
- To provide 100% Traceability of Blood and Blood products

5 Staff training, roles and responsibilities

Training requirements

The British Committee for Standards in Haematology and National Patient Safety Agency (NPSA) 2010 states that all staff involved in any part of the transfusion process must receive regular and adequate training.

Any member of UHP Staff Trust that takes part in any aspect of transfusion; MUST have an in date transfusion competency

Transfusion incorporates the following:

- Blood sampling
- Blood and blood product collection
- Blood and blood product administration
- Caring for the patient receiving a transfusion

If you do not have transfusion competency then you must not practice transfusion. Please note: this applies to all blood products.

Competency Assessments

Individuals are required to complete e-learning which has built in knowledge assessment. Each module is made of a number of units and at the end of these units are five questions to test knowledge and understanding.

Module 1 (or Module 4 for Paediatric/Neonatal staff): Safe Transfusion Practice: To be completed by all staff involved in transfusion from blood sampling to blood administration.

Module 2: Blood Components and Indications for use. To be completed by Clinical/registered staff. (In addition to Module 1 or Module 4 for Paediatric/Neonatal staff)

For staff members whose only role in Transfusion is Phlebotomy or Portering services, a shortened e-learning package is available

The e-learning is accessed through the Trust e-learning system (OLM).

Training is monitored by the Transfusion Practitioners and the details of which are recorded on the Oracle Learning Management tool (OLM) and stored as part of the Electronic Staff Record (ESR)
Further e-learning modules are available if required for individuals clinical role or speciality i.e. Cell salvage module

It is the individual’s professional responsibility to maintain their competency in transfusion, every two years.

**Blood Tracking (Bloodhound) Training**

Training on use of the blood tracking system is provided (as required) by the Transfusion Practitioners.

**Transfusion Disclaimer**

If you have no role in transfusion in your place of work, you may sign a disclaimer form. This form is available from the transfusion practitioners.

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**6 Adult consent to blood and blood product transfusion**

**Consent for treatment**

Every patient has a right to be treated with respect. Staff must be sensitive to patient’s individual needs, acknowledging their values, beliefs and cultural background.

Alternatives to Blood Transfusion should be implemented on an individual patient basis. (NICE Guidelines for Transfusion 2015)

Signed consent from the patient is not required for Transfusion. However the patient’s record must contain the following evidence.

- The reason for transfusion of blood or blood components has been explained and discussed with the patient.
- A discussion of the risks and benefits of Transfusion has occurred
- The transfusion process has been explained and any transfusion needs that are specific to the patient.
- Any alternatives that are available and how they might reduce their need for a transfusion.
- Patients are made aware that they have the option to refuse
- Patients are made aware that they will be no longer eligible to donate blood
- Patients are encouraged to ask questions

This information may be provided verbally but also re-iterated with written information on Blood transfusion.
Information leaflets explaining the risks and benefits of, and alternatives to, transfusion are available for patients who may require being, or have been transfused. Please contact the Transfusion Team on extension 31487.

Consent may be documented in the patient’s medical records or on the Clinical Transfusion record sheet. (Appendix 6)

For patients with long term transfusion requirements, long term consent may be documented on the consent for continued blood component transfusion record sheet (Appendix 3)

When pre-transfusion discussion has not taken place, the reasons for transfusion (based on risks and benefits) should be discussed with the patient and written information offered retrospectively.

7 Patients who do not accept or refuse transfusions

There are individuals who refuse whole blood and/or blood products. The majority of these patients will be Jehovah’s witnesses (JW) Clinical practitioners must be aware of patients’ beliefs in relation to receiving blood or blood products and of the non-blood medical alternatives to transfusion that may be appropriate.

Jehovah’s Witnesses are encouraged to carry a document called an Advanced Medical Directive at all times, which details their wishes about medical care. Staff must abide with the patient’s wishes expressed in this document.

Patient Choice
Each person decides whether he/she wishes to accept the following as a matter of patient choice. It must be discussed whether or not these procedures are acceptable with each patient and documented in the patient’s medical record, dated and signed:

- Intra-operative cell salvage, heart bypass (pumps must be primed with non-blood fluids), haemodialysis and Haemodilution.
- Fractions of plasma or cellular components, e.g. albumin, immunoglobulins, haemophilic preparations, vaccines, haemoglobin based oxygen carriers.
- Organ transplants.

Acceptable Medical Treatment for Jehovah’s Witnesses
Jehovah’s Witnesses accept most medical treatments, surgical and anaesthetic procedures, devices and techniques, as well as haemostatic and therapeutic agents that do not contain blood. They accept non-blood expanders, pharmaceuticals that control haemorrhage and stimulate the production of red blood cells and other non-blood management.

Unacceptable Medical Treatment for Jehovah’s Witnesses

- Transfusions of whole blood, packed red cells, white cells, plasma, platelets.
- Pre-operative autologous blood collection and storage for later transfusion (not available in Plymouth).
There is a Hospital Liaison Service for Jehovah’s Witnesses and their contact number is Tel: (02089) 062211. This is a 24hr service to provide guidance to Jehovah’s Witness patients and all staff involved in the patients care.

Refusal to the consent of Blood Transfusion in the case of a minor (This applies to all patients under the age of 18 years old)

In the case where a child’s life may be deemed to be at risk or serious harm may occur; a number of legal principles and precedents may apply.

The Trust solicitor’s must be contacted in all cases.

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### 8 Written instruction, (prescription) of blood and blood products

The term, ‘Written Instruction’, is used to describe the act of authorisation for blood and blood products.

Blood and blood products may only be authorised by a Doctor (or authorised non-medical prescriber)

The Written instruction must be documented in the Intravenous fluids section of the Trust standard drug chart. The only exception to this is on the Oncology Daycase and Haematology unit, where a dedicated blood transfusion pathway document is used.

Abbreviations must not be used in the written instructions authorising blood or Blood products. I.e. Red Blood Cells must be written and not abbreviated to RBC.

Any special requirements must also be documented on the written instruction (i.e. Irradiated)

There must be a documented reason why the blood transfusion is required in the patient’s medical records. This information may also be recorded on the Transfusion Clinical Record sheet (Appendix 6).

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### 9 Blood products

The following Products are available from Blood Bank:

- Red Blood Cells (RBC).
- Fresh Frozen Plasma (FFP).
- Cryoprecipitate (CRYO).
- Platelets.
- Prothrombin Complex.
- Immunoglobulin
- 4.5% and 20% Human Albumin Solution.
- Anti D (Rhophylac).
- Factor VIIa, VIII, IX and XI concentrates.
- Fibrinogen Concentrate
Blood transfusions are common in clinical practice. Despite considerable efforts to ensure the safety of blood transfusions, they are associated with significant risks. There is evidence from SHOT (2017) that:

- Some patients receive wrong blood components
- The choice of blood component is not always based on clinical findings and laboratory test values
- Some patients are transfused unnecessarily, which is a waste of a scarce and costly resource and puts patients at unnecessary risk.

**Red Blood cells**

The Trust advocates use of restrictive transfusion thresholds in patients who need transfusion but who do not:

a) Have a major Haemorrhage or  
b) Have acute coronary syndrome or  
c) Need regular transfusions for chronic anaemia

**Red Cell thresholds for transfusion**

- Hb 70g/litre or  
- Hb 80 g/litre in patients with acute coronary syndrome

Transfusions should follow the NICE guidelines and agreed thresholds and targets for each component. E.g. an Hb of 70g/litre in a patient with no cardiovascular disease should be given a single unit transfusion and review.

In some cases it may be necessary to consider a higher threshold for red cell transfusion (i.e. to aid post-operative recovery and rehabilitation) in these cases, the clinician must document in the patients’ medical records, the individual patients red cell threshold and the reasons for this decision.

To aid the decision to transfuse red cells, refer to the Blood transfusion Algorithm (Appendix 1).

Patients, who require regular blood transfusions for chronic anaemia, should have individual transfusion thresholds for red cell transfusions.

**Fresh Frozen Plasma (FFP)**

FFP must not be offered to correct abnormal coagulation in patients, who are not bleeding, unless:

a) They are having invasive procedures or surgery with a risk of significant bleeding
b) They need reversal of a Vitamin K antagonist

**vCJD precautionary measures taken by the UK blood and tissue services**

Measures to minimise transmission by blood or tissues were introduced in 2004, these included:

- Withdrawal and recall of any blood components, plasma derivatives, cells or tissues obtained from any individual who later develops variant CJD.
- Importation of plasma from countries other than the UK for fractionation to manufacture plasma derivatives for patients born after 1st January 1996.
- Leucodepletion of all blood components.

**ALL PATIENTS BORN ON OR AFTER 01/01/1996 MUST BE ISSUED WITH METHYLENE BLUE TREATED FFP or Octoplas LG**

**Platelets**

Do not routinely transfuse more than a single dose of platelets.

Prophylactic platelet transfusions should be given to patients with a platelet count below $10 \times 10^9$ per litre, who are not bleeding or having invasive procedures or surgery, and who do not have any of the following conditions:

- Chronic Bone marrow failure
- Autoimmune thrombocytopenia
- Heparin induced thrombocytopenia
- Thrombotic thrombocytopenia purpura

**Prothrombin Complex Concentrate (PCC)**

Immediate PCC transfusions for the emergency reversal of warfarin anticoagulation should be given in patients with either:

- Severe bleeding or
- Head injury with suspected intracerebral haemorrhage

**Other Products**

**Tranexamic Acid (TXA)**

Nice guidelines (2015) advocate the use of TXA as an inexpensive Antifibrinolytics pharmacological agent that can be administered before and during surgery to reduce bleeding and therefore the need for blood transfusions. There is strong evidence that this is clinically effective and its use will reduce mortality and costs.
The NICE Guidelines (2015) recommend the following uses of TXA:

- TXA is offered to adults undergoing surgery who are expected to have at least moderate blood loss (>500mls)
- Consider the use of TXA in children, undergoing surgery with an expected blood loss of >10% Blood volume
- Do not routinely use cell salvage without TXA
- Consider intra-operative cell salvage with TXA for patients who are expected to lose a high volume of blood (i.e. in cardiac and complex vascular surgery, major obstetric procedures, pelvic reconstruction and scoliosis surgery)

**Iron therapies**

The correct approach for the management of anaemia is important in avoiding the unnecessary use of blood transfusions. Early recognition of iron deficiency anaemia in patients, especially those undergoing surgical procedures, is essential to effectively treat the anaemia.

Oral Iron preparations should be offered to patients before and after surgery, with confirmed iron deficiency anaemia.

Consider Intravenous iron, before or after surgery, for patients who:

- Have iron deficiency anaemia and cannot tolerate or absorb oral iron
- Are diagnosed with functional iron deficiency anaemia
- 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.

### 10 Routine requests for blood products

**Requesting procedure**

Blood and Blood products are requested using the Blood Transfusion Request Form. It is important to complete all details on this form correctly and in full. A transfusion indication code must be entered; these can be found on the reverse of the request form, (Appendix 4).

An EDTA sample tube (4mls in pink topped vacutainer bottle) must accompany the signed request form. ALL details must be correctly completed and the sample tubes and form.

The sample tube and the form MUST be signed by the person who has taken the blood sample.

The sample tube and form MUST arrive in blood bank together.

For children over 6 months 2-3 mls of clotted blood are sufficient and for younger infants smaller sample tubes are available.

Incomplete or missing details on the form or the sample label will result in the sample being rejected. Repeat samples and forms will be requested.
It is Trust policy that all incidents involving mislabelling and/or miss-sampling are reported on Datix.

Once the form and sample have left the requester any missing detail cannot be completed retrospectively.

## 11 Blood sampling

Errors in sample labelling and patient identification may result in the patient receiving the wrong blood with potentially fatal consequences.

### The Sample Circle

Never leave the “sample circle” with unlabelled samples.

Ensure the venous blood sample is being taken from the correct patient by asking the patient to state their full name and date of birth.

Verify the reply against the patient’s wristband and sample request form.

When taking samples from patients unable to verbally identify themselves, in addition to matching the wristband with the request form information to confirm this is the correct patient, it is permissible to ask a relative or carer to confirm identity.

Samples must be taken from one patient at a time and labelled at the patient’s bedside using the patient’s identification band, with the patient’s;

- Surname
- Forename
• Hospital Number or NHS Number
• Date of Birth

Addressograph labels can be used on the request form but NOT on the sample tube.

iCM labels can be used for specimen labelling, if they are printed at the bedside and correctly placed on the tube. They can also be used on the request form instead of addressograph labels. Addressograph labels can be used on the request form but NOT on the sample tube. (Addressograph labels are too big to go on the sample tubes and therefore cause a problem in the analyser)

Please take time and care when attaching iCM labels to the sample tube. Labels should be placed on the tube vertically and straight to ensure the laboratory analysers are able to read the barcode.

Regularly transfused patients
BCSH guidelines state that for patients who are repeatedly transfused it is unnecessary to test a fresh sample daily. Such patients should be rescreened for anti-bodies every 72 hours.

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<td>00 - 24 hours</td>
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<td>02 - 14 days</td>
<td>24 hours before transfusion</td>
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<td>14 - 28 days</td>
<td>72 hours before transfusion</td>
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<td>29 days to 3 months</td>
<td>1 week before transfusion</td>
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Electronic issue of Red Blood cells

Electronic Issue is a computer generated crossmatch of blood. It allows red cell units that are ABO and RhD compatible to be issued for a patient with no further testing, provided the following assurances can be made;

- That the patient has no irregular antibodies
- Two Group and save samples are taken at different times (to confirm the same blood group) One sample may be an historic sample (providing no more than 3 months old) The second sample is a validation/ Check sample, ensuring the blood group is the same.

Checking suitability for Electronic Issue

Not all patients are suitable for the Electronic Issue of blood.

Never assume that simply because two separate samples have been taken, that the patient is suitable. Check the PATH/iCM system to see if your patient maybe suitable for Electronic Issue.

Please note: If a patient has antibodies they will never be suitable for electronic issue.

For electronic issue, TWO group and save samples must be taken independently of each other and at least 30 minutes apart (preferably each sample should be taken by a different individual)

This is for the Patient’s safety, and samples must never be taken at the same time and fraudulently labelled to indicate they have been taken at separate times.

IMPORTANT

Check the PATH/iCM system first before sampling. There may be historical results that mean only one sample or no samples are required if a historic samples is less than 3 months old.

Patient Identification

The four points of patient identification are;

- First name
- Surname
- Date of birth
- NHS number (the Hospital Number is also printed on the patient wristband)

The above four points of identity are documented on the patient wristband and used to identify the patient throughout the period of care.

All patient wristbands used in UHP are printed with bar coded hospital and/or NHS number.
Positive Patient Identification

Patients with capacity must be asked to identify themselves. Positive Patient Identification requires the patient to give their full name and date of birth.

In circumstances where patients do not have capacity, use the ID band, the patient’s medical record, and, if present a relative may be asked.

The Unidentified (Unknown) Patient

The Unidentified Patient Identification System is run by the Emergency Department and used when a patient cannot be positively identified.

It is used for Adult Trauma patients, to enable registering patients and expediting critical tests and investigations.

The Unidentified patient is issued with a wristband and identification labels which have “QQ” in front of the surname and the phonetic alphabet will be used for both the surname and forename.

For Example Surname: QQALPHA     Forename: Uganda

All specimens and diagnostic tests must be ordered using the allocated unidentified patient details assigned to the patient, until the patients details are changed by the formal process identified in the unidentified patient policy. Patient details can only be changed by authorised personnel.

Failure to comply with the formal change procedure may result in delays in issuing Blood products.

When requesting blood products for the unidentified patient, it is essential that the requestor stipulates the patients GENDER, if they are an ADULT or CHILD and an approximate age.

Changes to Patients Identity details

Blood Bank must be informed of any changes made to the patient’s identity details immediately. Changes made on the Trust patient identification management system (PIMS) automatically override the details in the laboratory systems.

Failure to notify Blood bank of changes made, may result in the inability to issue blood/ or delays in the issue of blood for the patient.

Changes to the patient’s identification details may require a further blood sample to be sent to blood bank to confirm the patient’s blood group. Please contact Blood bank for advice.

14  Electronic Blood Tracking System (eBT)

The electronic blood tracking system was implemented throughout the Trust since 2011.

Staff members in this Trust are required to have in date transfusion competency before access to the electronic blood tracking system is granted.
Trust staff members ID badge has a barcode and unique number on the back. This enables staff to access the eBT system. In itself this ID will not allow the user into the system unless they are specifically given access from within the software which is organised by the transfusion practitioners for staff who have completed their competency assessment. The Kiosk also allows users to use optional Biometric login.

Red blood cells and Fresh Frozen Plasma (FFP) are tracked through the electronic blood tracking system (eBT)

The Blood tracking system comprises of three sections:
- The Web application (Desktop icon on ward computers)
- The Blood Fridge Kiosk: (touch screen monitor by blood fridge).
- The Bedside Module: (A handheld device kept on the ward).

### Laboratory procedures

**Group and Screen (G&S)**

The patient’s blood is A, B, AB or O and Rh D grouped and the plasma are screened for atypical antibodies. This is performed by an automated blood group analyser and records are stored electronically on the PATHology computer system.

**Cross matching - compatibility testing**

At cross-match the patient’s ABO and Rh D group is confirmed and recorded. Cross-matching is performed by testing the patient’s serum against donor red cells at 37º C by the anti-human globulin technique.

The laboratory procedures for group and save and compatibility testing are monitored using the United Kingdom Accreditation Service (UKAS) and the MHRA.

ABO compatible group specific blood will be supplied if the patient has been previously grouped and the immediate spin group is the same. In situations where discrepancies occur or the patient has not previously been grouped, group O Emergency blood will be issued.

The type of red cell blood issued depends on the availability and clinical requirements. The different red cell products are:

<table>
<thead>
<tr>
<th>Product</th>
<th>Volume in mls</th>
<th>Haematocrit (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Cells (Leucredepleted)</td>
<td>200 – 420 mls</td>
<td>0.5 - 0.7</td>
</tr>
<tr>
<td>Paediatric red cells (Leucredepleted)</td>
<td>45 – 80 mls</td>
<td>0.5 - 0.65</td>
</tr>
</tbody>
</table>
There are other red cell products that are available on request for neonatal exchange. These must be arranged with the laboratory as soon as need is established as these products are not normally stocked.

Once cross-matched, blood will be reserved for the patient, for a maximum of 48 hours.

The time the blood is reserved for the patient is documented on the Blood product label. This is known as the De-reservation date. The unit of Blood must not be transfused to the patient if this date has expired. If not used, blood will be automatically returned to stock. If blood is required to be held for longer than 48 hours, please discuss with blood bank.

Please note: In times of shortage reservation periods may be reduced to 24 hours.

16 Collection and delivery of blood and blood products

Blood Tracking: Desktop Application on PC:
Before proceeding to collect blood/Blood products, the electronic blood tracking system should be checked. This allows users to establish if the blood product has been issued to the patient and where it can be collected from.

This can be done by using the Web Application – (desktop icon on ward computers).

This part of the system gives the user the opportunity to track blood units by patient and by location. Once the blood bank issues units of blood into the blood fridge that information can be seen and the ward will know the blood is available and where to go to be able to collect the units.

The web application also allows the staff member to generate a Patient collection slip. The patient collection slip has a bar coded hospital number to identify the patient and all four points of patient identification (Forename, surname, Date of Birth and Hospital number) This collection slip can also be used to scan the patients details into the Blood tracking fridge kiosk.

Before collecting a unit of blood first check the following:

- Base line observations of the patient. (Pulse, Blood Pressure, Respirations, Temperature and Oxygen saturations)
- Make sure the patient has intravenous access.

If there is any concern with any of these observations, or the patient does not have adequate intravenous access, please refer to a senior staff member or member of the medical team before units of blood are collected.

The above checks are essential to prevent blood wastage.
Blood Tracking: Blood Fridges

Patient specific blood will be placed in the appropriate blood fridge in readiness for collection by the ward staff.

The blood fridge is controlled via a touch screen computer. The staff member uses a bar code found on the back of the ID badge that identifies them to the system with a personal PIN number for security/ or may log into the fridge with Biometrics. The fridge will only open if all conditions are met correctly.

Collecting blood from the issuing blood fridge.

If there is any discrepancy between the patient collection slip and patient specific blood details, contact Blood Bank immediately. DO NOT REMOVE or TRANSFUSE THE BLOOD OR BLOOD PRODUCT.

Patient confidentiality must be maintained when carrying blood between issuing fridge and ward or department. Carry bags are provided beside every fridge and must be used to transport the units.

Blood that has been out of the fridge for over 30 minutes cannot be returned to the blood fridge and can lead to wastage. Contact Blood bank for advice as it may be possible to resume the transfusion within the allowed four hour window.

17 Checking Procedure

The final patient identification check at the bedside is the last opportunity before administration begins to detect an error. A failure to undertake the formal identity check of the component with the patient at the bedside puts the patient at risk and breaches professional standards and guidelines.

The patient must always be positively identified by asking the patient, (providing the patient has the capacity to do so) to tell you their full name and date of birth. Check these details against the patient’s Identification band and blood product label.

Special care must be taken where there may be language difficulties or the patient is unconscious and unable to confirm their identity or has some form of disability that prevents him/her from understanding you. In the case where the patient is unable to state their full name and date of birth, the patient’s wristband must be checked by the two registered practitioners.

The pre-transfusion checks must take place at the patient’s bedside immediately prior to administration.

Identification details must be the same in the;
• Written Instructions (Prescription Sheet).
• ID wristband.
• Blood bag label (Appendix 7).
Also check the;
- Unit number.
- Expiry date and de-reservation date have not elapsed
- That any special transfusion requirements have been met (i.e. irradiated)

Check the bag of blood for;
- Haemolysis.
- Turbidity or discolouration.
- Bag integrity.

If there are any discrepancies found in the checking procedure the blood must not be transfused. Blood Bank must be informed and the unit returned to the blood bank.

Record in the patients’ medical notes;
- Reason for transfusion.
- Components prescribed.
- Record of the observations.

**Blood Tracking: The Bedside Module – (A handheld device kept on the ward).**

Once the correct unit of blood has been extracted from the blood fridge it can be taken back to the ward or department. Using the handheld iPod device the user can confirm the time in which the blood unit arrives in the department/ward. The tracking system will request the user to complete the on screen prompts and scanning of the patient’s barcoded wristband, thus ensuring the right blood is given to the right patient. Once all the correct information has been gathered by the system the transfusion can be started.

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18 | **Administration of blood and blood products**

You must be transfusion competent and Intravenous drug administration competent, to be able to administer blood and blood products.

Each unit of blood must be checked prior to administration by two registered practitioners one of whom must be IV trained, e.g. a Doctor, Nurse, ODA or ODP.

The prescription chart signed by both individuals.

The red sticker label accompanying the blood product, must also be signed and transferred to the patient’s medical notes.
Fresh Frozen Plasma (FFP)
Transfusion should be commenced as soon as the product is received. If there is any delay in transfusion FFP should be returned to blood bank or nearest Blood tracking Fridge.
FFP may be re-issued for up to 5 days after thawing, so long as it is stored correctly.

Platelets
Platelets must not be refrigerated.
Platelets need to be continually agitated to prevent aggregation.

Cryoprecipitate
Transfusion should be commenced as soon as the product is received.

Intravenous Access
Standard intravenous cannulas are suitable for blood component infusion. For rapid infusion a large bore cannula is needed, e.g. 14 G. Multi-lumen central lines are usually suitable for the transfusion of blood components, check with the manufacturer’s instructions before proceeding.

Administration sets
Blood should be administered via a blood giving set which has a 170-200 µm filter. It is unnecessary to prime the line with saline.
The line should be changed every 12 hours and after completion of the transfusion.
Platelets should not be transfused through a giving set that has been previously used for red cells or other blood components as this may cause aggregation and retention of platelets in the line.
Platelet and plasma components may be administered through a blood giving set or through a platelet/cryoprecipitate giving set.
No other medication may be added or administered through the same cannula whilst the transfusion is under way. Once the transfusion is completed the cannula can be used for other forms of medication. The cannula does not need to be changed because a transfusion has been administered through it.

Infusion times.
A unit of blood must take no more than 4 hours to transfuse.
Once a unit of blood is removed from Controlled Temperature Storage (CTS), the risk of bacterial proliferation increases with time especially in a warm ambient temperature.
A unit a blood left out of CTS for 30 minutes or more MUST NOT be returned to the blood fridge. However it can still be transfused to the patient it has been prescribed for, providing that the time from removal to the completion of the transfusion, does not exceed 4 hours.
For example:

<table>
<thead>
<tr>
<th>Example 1: Transfusion time</th>
<th>= 4 hours – out of CTS time of 60 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>= 4 hours – 60 mins</td>
</tr>
<tr>
<td></td>
<td>= 3 hours transfusion time remaining</td>
</tr>
</tbody>
</table>

For adult patients infusion rates and times vary and must be specified by the clinician who orders the transfusion.

**Cell Salvage blood.**

Use a standard blood giving set or the giving set as supplied by the cell salvage pack.

Cell salvaged blood with a filter should not be administered via a rapid infuser.

Observe the same instructions as for Red Blood Cells.

**Blood warmers.**

Blood and other infused fluids should be warmed for patients in haemorrhagic shock or as directed by blood bank.

Blood must never be warmed in an uncontrolled way, e.g. in a microwave, in hot water or on a radiator.

Blood warming devices can be located on Birch Day case unit and in Main theatres.

| 19 | Care of the Patient during transfusion |

A transfusion should only take place if there is sufficient competent staff available to monitor the patient and the patient can be readily observed throughout the transfusion episode.

‘Transfusion should only be performed where there are facilities to recognise and treat anaphylaxis.’

**Transfusion observations**

The patient must be monitored for adverse reactions before and during the transfusion.

The minimum observation requirements are;

- Temperature.
- Pulse.
- Blood pressure.
- Respirations.

The First set of observations must be taken just prior to the commencement of the transfusion and prior to collecting the first unit from the blood fridge.
The Second set of observations should be taken 15 minutes after commencing the transfusion.

Further sets of observations are to be taken each hour and at the completion of the unit. These observations are repeated for each unit of blood given. The reason for this is that each unit of blood will come from a different donor. Whilst the patient may not react to one unit, they may well react to subsequent units.

Unconscious patients or patients with communication difficulties must be observed more regularly throughout the transfusion, for any changes to vital signs, which could be a possible indicator of a transfusion reaction.

**Off ward investigations whilst being transfused**

Patients requiring further investigation off the ward, whilst undergoing transfusion, must be escorted by a trained and transfusion competent person.

<table>
<thead>
<tr>
<th>20</th>
<th>Completion of a transfusion and traceability</th>
</tr>
</thead>
</table>

Once the transfusion has completed and, as part of Haemovigilance and traceability, the staff member responsible for monitoring the transfusion completes the ‘End the Transfusion’ option on the handheld device. The system records the whole event against time over which the unit of blood was transfused.

All Trusts are required by law to provide Haemovigilance data, this is known as traceability. Traceability is closely monitored by the Medicines and Healthcare Regulatory Authority (MHRA).

Sign and date the blue compatibility label (Appendix 7) on the empty bag to confirm that the patient was transfused with that unit. This is part of the process of Traceability by which the Blood Bank will always be able to trace the unit of product to the person that received it.

All used and part used blood and blood product bags must be returned to the Blood Bank, within 24 hours of being used. To evidence this, there is a legal requirement of traceability (the process of tracing the blood product from donor to recipient) set out by the Blood Safety and Quality Regulations (BSQR) 2005.

After Transfusion, use the blue plug to stopper attached to the bag to prevent residual contents from contaminating the carrier and its contents creating a biohazard.

**Transfusion Clinical Record and Product Label**

The Transfusion Clinical Record Sheet is a document that stays with the patient medical record and is completed at the various stages a patient passes through before transfusion of blood or blood product. It allows an easy tick box approach of recording the;

- Reasons for transfusion
• The risks, benefits, alternatives and the option to refuse consent to receive a transfusion.
• The outcome of the transfusion.

It provides a secure place to keep the sticky backed red blood product label(s) providing evidence of Date, time and persons involved in administering the product.

**Blood bag disposal procedures**

Blood bags MUST NEVER be discarded. Blood bags must be returned to authorised collection points or Blood Bank within 24 hours of the completion of the transfusion.

Empty bags are kept by Blood Bank for seven days, in case of delayed transfusion reaction, before being disposed of.

### 21 Overnight Transfusions

In the past, transfusions were not recommended to take place at night due to risk of decreased staffing levels however this has led to cases in which patients were denied transfusions at night when it was clinically essential.

Transfusions at night may proceed, providing there is a clear clinical requirement for the transfusion to be given and that there is sufficient staffing to ensure the transfusion is given in accordance with the BCSH guidelines.

Decisions to transfuse should not be made on the basis of a Haemoglobin result, but by taking into account the patient's medical history, current medical condition and their individual wishes.

Transfusions should be given with the same attention to patient observations regardless of the time of day or night.

However, remember the risks:

* Generally fewer staff around.
* Only one laboratory scientist during out of hour's service.
* Reduced lighting – more difficult to observe patient.

### 22 Transfusion reactions

Transfusion reaction can result in an anaphylaxis reaction causing rapid deterioration with hypotension, respiratory distress and collapse.

Signs and symptoms of severe adverse reactions often occur within the first 15 minutes of the transfusion. These can occur with all blood components and plasma derivatives.

The following are some, not all, of the signs and symptoms to watch out for;

* Shivering.
* Flushing.
* Urticaria.
• Respiratory distress.
• Increasing anxiety/restlessness/ Sometimes described as a feeling of “impending doom”
• Loin pain.
• Headache.
• Rise in temperature.
• Tachycardia.
• Hypotension.
• Pain at or near the transfusion site.
• Dark coloured urine

Adverse reactions in an unconscious, compromised or paediatric patients may not be obvious or easy to observe.

There has been an increase in the number of severe allergic reactions across all component types for paediatrics, although not in the neonatal/infant group.

If a transfusion reaction is suspected
• Stop the transfusion immediately.
• Call for medical assistance. Consider involving a Consultant Haematologist.
• Maintain venous access with normal saline.
• Record vital signs every 15 minutes including urinary output.
• Check patient identity against the unit of blood.
• Inform blood bank immediately and return the affected unit complete with giving set.
• Inform the Transfusion Practitioners.
• Complete an Incident Form.

Medical Staff
• Involve the on-call Consultant Haematologist.
• Take a blood sample from the opposite arm to the transfusion arm and repeat cross-match.
• Send a urine sample.
• Discuss with blood bank, the following may be needed;
  - Urea and Electrolytes.
  - FBC.
  - Blood Cultures.
  - Clotting screen.
All staff involved in the prescription of blood and blood products and all those with medical or nursing responsibility for patients receiving transfusions must be familiar with guidelines concerning the recognition and management of transfusion reactions.

Further guidance on Transfusion reactions and their management can be found in Appendix 9

In 2018, a transfusion reaction reporting card will be trailed to aid staff in the management and correct reporting procedures for suspected transfusion reactions (Appendix 11)

Table of common transfusion reactions

<table>
<thead>
<tr>
<th>Type of reaction</th>
<th>Why</th>
<th>Symptoms</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fevers.</td>
<td>Interleukins. HLA antibodies.</td>
<td>Temp 1.5°C above normal.</td>
<td>Slow transfusion; give Paracetamol 1g, Hydrocortisone 100mgs and Chlorpheniramine 10mg IV (adult).</td>
</tr>
<tr>
<td>Anaphylaxis.</td>
<td></td>
<td>Urticaria, itching, cardiovascular collapse.</td>
<td>Chlorpheniramine 10mgs IV (adult), Adrenaline protocol</td>
</tr>
<tr>
<td>Viral contamination.</td>
<td>From donated blood, risk 1:900,000 for HepB, HIV, HepA and HepC, vCJD, CMV</td>
<td></td>
<td>All plasma coagulation factor patients vaccinated against HBV.</td>
</tr>
<tr>
<td>TRALI (Transfusion Related Lung Injury).</td>
<td>Donor plasma containing antibodies.</td>
<td>As per acute respiratory distress syndrome.</td>
<td>ICU.</td>
</tr>
</tbody>
</table>
Iron overload

Each unit of blood contains 250mg of iron. Transfusion dependent patients ultimately develop haemosiderosis. Since iron excretion is very limited accumulation in the body causes toxic effects after 10 – 15 units have been transfused. These patients require lifelong iron chelation therapy.

In younger patients this can be reduced by subcutaneous infusions of an iron chelator, Desferrioxamine.

The iron transfused in blood is fixed in the Reticuloendothelial System (RES) and not made available for subsequent haematopoiesis.

Transfusion Related Acute Lung Injury (TRALI)

TRALI is a serious complication of blood transfusion which is thought to arise as a result of the interaction of specific leucocyte antibodies with leucocytes in most cases. TRALI has been reported to occur after transfusion of all the following blood components; red blood cells, plasma, platelets and cryoprecipitate.

Patients present with dyspnoea, hypoxia and symptoms and signs of pulmonary oedema. Diagnosis is made on clinical grounds, which may later be supported by demonstrating the presence of donor leucocyte antibodies.

| Delayed transfusion reactions. | Antibodies to white cell and platelet antigens. | Febrile reactions 2 - 14 days post transfusion. Post transfusion purpura. |

Iron overload
**Transfusion Associated Circulatory Overload (TACO)**

TACO is a serious but under-recognised complication of blood transfusion.

TACO is currently defined as having any 4 of the following signs/symptoms within 6 hours of transfusion

- Acute respiratory distress
- Tachycardia
- Increased blood pressure
- Acute or worsening pulmonary oedema
- Evidence of positive fluid balance

TACO can be associated with rapid or massive transfusion of blood/Blood products, especially in patients with diminished cardiac function or chronic anaemia. Patients over the age of 60 years of age, infants and those with severe anaemia, are particularly susceptible.

A TACO Checklist is available to aid clinicians in the decision making process of transfusing a patient (Appendix 12)

### 23 | Urgent and emergency requests

A telephone call recording system is in place in Blood Bank and records all incoming and outgoing calls.

When contacting the laboratory, you must identify yourself clearly and the purpose of your call. **NEVER CALL SWITCHBOARD TO NOTIFY BLOOD BANK OF AN EMERGENCY SITUATION**

All urgent requests during normal working hours 08:00 to 17:00 should be communicated to the lab by telephoning ext. 52411.

In an emergency use the Blood Bank Hotline ext. 52828.

Evenings, weekends and bank holidays, always contact the on call BMS using bleep number 0871. The on call BMS may be out of hearing range of the telephone and working anywhere in the labs.

Where a Massive Transfusion is anticipated or required, please refer to the Massive Transfusion Protocol.

It is possible that the patient may be suitable for ‘Electronic Issue’, (see Section 12)

Alternatively, if the current sample has already reached the laboratory and been grouped and antibody screened, then blood can usually be matched and issued in 30-45 minutes.
It is important that all telephoned requests contain clear identification of the patient concerned. Four points of patient identification are required,

- Forename
- Surname
- Date of birth
- NHS and/or Hospital number.

A written request must follow. It must be properly completed, signed and dated.

When patients cannot wait for a crossmatch consider using the emergency blood, but still send the cross match samples and contact the Blood Bank.

**Emergency blood and FFP**

The Blood Bank will only be aware that emergency blood stocks have been used if YOU tell them. The emergency blood will only get replaced once Blood Bank becomes aware it has been used. It is the responsibility of the Individual removing the Emergency blood to notify blood bank.

**RBC’s – Group O Rh negative (Universal Donor)**

If the patient’s condition requires immediate transfusion before group specific blood is available, emergency stocks of group O Rh D negative and Kell negative blood are available in blood fridges at the following sites:

- Outside Derriford Blood Bank, Level 06 4 units
- Derriford Theatres, Level 04 4 units
- Cardiac Theatres, Level 06 2 units
- Central Delivery Suite, Level 04 2 units
- Freedom Unit, Level 02 1 unit

Communicate with Blood Bank and initiate the Massive Transfusion Protocol, (Appendix 2), at an early stage if a massive transfusion is envisaged. (Specific protocols have been developed for Adults, Paediatrics, Obstetrics and Trauma)

Rh D positive blood may be used in males or older patients (if supplies of group O Rh D negative blood are short/or to conserve O Rh D negative blood supplies) Most women will receive Rh D negative blood.

**Emergency Fresh Frozen Plasma (FFP)/Octoplas – Group A Rh positive**

In August 2015 The British Committee for Standards in Haematology (BCSH) Guideline on the Management of Major Haemorrhage was published
For the management of trauma-related major bleeding, the Guideline recommends that fresh frozen plasma (FFP) be given empirically in the initial stage of resuscitation, and that Group A FFP be used universally for adults, if the patient’s blood group is unknown.

This product is kept frozen and is therefore not immediately available from a blood fridge. When an emergency situation is notified to blood bank, the FFP is immediately placed in a defroster and prepared for use. This process takes approximately takes up to 30 minutes. Blood bank will notify the requesting area as soon as the product is ready for collection.

Emergency blood and Emergency FFP is not allocated to a specific patient. It is essential that once used, the receiving patients details are documented on the labels attached to the individual units and all units returned to blood bank (Appendix 8)

**Useful Telephone numbers**

<table>
<thead>
<tr>
<th>Service</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Bank Hotline</td>
<td>52828</td>
</tr>
<tr>
<td>Duty Consultant Haematologist</td>
<td>Bleep via switchboard</td>
</tr>
<tr>
<td>Blood Bank Drivers</td>
<td>Bleep via switchboard</td>
</tr>
<tr>
<td>Blood Bank</td>
<td>52465 during working hours, bleep 0871 out of hours, weekends and bank holidays.</td>
</tr>
<tr>
<td>Transfusion Practitioner</td>
<td>31487 or bleep 0604</td>
</tr>
</tbody>
</table>

All staff members must be aware of the Emergency Blood procedures and Massive Haemorrhage protocols for their specific area.

**Request for group specific blood in an emergency**

The patient may be suitable for Electronic Issue (see Section 12). In an emergency situation; blood bank will be able to advise you.

If the patient has not had a group and save sample in the hospital before, then a cross match sample must be sent to blood bank (with a completed request form) as soon as possible. To enable group specific blood to be issued for the patient, minimising the risk of a haemolytic transfusion reaction.

Patients with known antibodies will take longer to obtain suitable donor blood.

Please notify Blood Bank when the emergency situation has been resolved.
Obstetric haemorrhage

The blood flow to the placenta is about 700ml/min at term so bleeding is likely to be rapid. It is often unexpected and difficult to control.

Early activation of the Obstetric Massive Transfusion Protocol is essential (See Massive Transfusion Policy 2017)

Disseminated intravascular coagulation (DIC) is common in obstetric haemorrhage due to placental abruption, amniotic fluid embolism and intrauterine death.

Haemorrhage due to DIC is usually relieved only by treating the underlying disorder.

Supportive treatment with platelets, FFP and cryoprecipitate may be required and should be guided by laboratory tests/ near patient testing such as TEG/ROTEM.

Bleeding into the uterine cavity, the uterine wall or the abdomen may conceal the extent of the blood loss. As a result the patient may decompensate suddenly in the post delivery period.

Haemolytic disease of the newborn (HDN)

HDN is suggested by an anaemia associated with a high reticulocyte count and hyperbilirubinaemia. Causes can be non-immune and include red cell membrane disorders, red cell enzymopathies, haemoglobinopathies and infections.

Immune HDN is associated with a positive Coombs test and is most commonly due to transplacental passage of maternal IgG alloantibodies to red cell antigens. The most common are those against Rh antigens, anti-Kell, anti-Kidd, anti-Duffy and antibodies of the MNS blood group system.

ABO haemolytic disease can also occur when the mother is blood group O and has IgG anti-A and anti-B antibodies. Usually this causes a hyperbilirubinaemia without significant anaemia that responds to phototherapy. However, more severe cases can occur, these usually involve anti-B antibodies.

The most frequent alloantibody to cause significant haemolytic anaemia is anti-D which acts against rhesus antibodies.

Most infants with HDN present with jaundice and/or anaemia and are born to mothers with known antibodies.

The management of pregnancies complicated by HDN should involve the obstetric, haematology and neonatal teams.
In severe cases referral should be made to fetal medicine for monitoring early in the pregnancy. Intervention with intrauterine transfusions has meant that one of the most severe complications, hydrops fetalis associated with severe fetal anaemia, is avoided.

If an infant is suspected of having severe disease then a delivery plan should be made involving all the relevant teams.

All neonates at risk of HDN should have cord blood taken for haemoglobin, Coombs test and a bilirubin.

Any infant known to have haemolysis should have phototherapy started after birth while awaiting results. Most cases of HDN are managed with phototherapy and ensuring adequate hydration.

An exchange transfusion should be considered in severe cases to treat;
- Severe anaemia
- Severe or rapidly increasing bilirubinaemia. Hyperbilirubinaemia is associated with permanent neurological damage.

**Prophylaxis of Rh haemolytic disease of the newborn**

At PHNT the following regime is followed:

- Single dose at 28 weeks (1500iu)
- Further dose at delivery (500iu)

Further dose may be required for any potentially sensitising event (PSE) (500iu)
- Invasive prenatal diagnosis (e.g. amniocentesis)
- Other intrauterine procedures
- Ante partum haemorrhage (APH)
- External cephalic version
- Closed abdominal injury/trauma
- Ectopic pregnancy
- Intrauterine death

Anti D should only be given to non-sensitised RhD negative pregnant women
For advice, please contact blood bank.
Further guidance is available via the following links
Royal College of Obstetricians and Gynaecologists
National Institute for Clinical Excellence

http://www.nice.org.uk/

**Recommendation for Anti-D and Intraoperative Cell Salvage (ICS),**

Where intra-operative cell-salvage (ICS) is used during Caesarean section in Rhesus D negative, previously non-sensitised women, and where cord blood group is confirmed as Rhesus D positive (or unknown), a minimum dose of 1500 IU anti-D Ig should be administered following re-infusion of salvaged red cells, and a maternal sample should be taken for estimation of fetomaternal haemorrhage (FMH) 30 – 45 minutes after reinfusion in case more anti-D 1g is indicated. It is important that clinicians inform the transfusion laboratory if ICS has been used to ensure that correct dose of anti-D Ig is issued.” (BCSH guideline for the use of anti-D immunoglobulin for the prevention of haemolytic disease of the foetus and newborn, Qureshi et al, Transfusion Medicine 2014, 24, 8-20).

**Transfusion in Paediatric/Neonates**

**Equipment for Paediatric transfusion**

All infusion devices must be tested and shown by the manufacturers to be suitable for the transfusion of blood components.

Syringe drivers are suitable for neonatal red cell transfusion but are not suitable for use with platelets. A syringe driver could trigger the platelets to aggregate in the line. Only use syringe drivers or rapid infusion devices with blood or blood products if the manufacturer advices it is safe to do so.

Red cells must be transfused through a sterile blood administration with a suitable filter (170-200 micron) incorporated.

For small volume transfusions specific Paediatric giving sets with small priming volumes are recommended.

Blood components can be safely transfused through small gauge peripheral cannulas or central lines including umbilical catheters (some Neonatologists consider these may increase the risk of necrotising enterocolitis).
## Blood components for neonatal transfusion

<table>
<thead>
<tr>
<th>Component</th>
<th>Volume</th>
<th>Infusion rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Red Cell</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Exchange transfusion</em></td>
<td>(Plasma-reduced whole blood in citrate phosphate dextrose, haematocrit 0.5–0.8, ≤ 5 days old, irradiated)</td>
<td>80–100 ml/kg (for anaemia) 160-200 ml/kg (for hyperbilirubinaemia)</td>
</tr>
<tr>
<td></td>
<td>(red cells suspended in saline-adrenaline glucose-mannitol, haematocrit 0.5–0.7, ≤ 35 days old, 'paedipak' if likely to need repeated small-volume transfusions, irradiated if neonate had intrauterine transfusion)</td>
<td>10-20 ml/kg (recent audit shows volumes to be 20-25 ml/kg over 4 hours)</td>
</tr>
<tr>
<td><strong>Emergency large-volume transfusion</strong></td>
<td>(Plasma-reduced red cells have been advised: BCSH guideline now suggests that red cells in additive solution should be considered)</td>
<td>10-20 ml/kg (recent audit shows volumes to be 20-25 ml/kg over 4 hours)</td>
</tr>
<tr>
<td><strong>Platelet Concentrate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Adult apheresis packs split into 50-75 ml)</td>
<td>10-20ml/kg (recent audit shows volumes to be 20-25 ml/kg over 4 hours)</td>
<td>10-20 ml/kg/hr</td>
</tr>
<tr>
<td><strong>FFP</strong></td>
<td>(Pathogen reduced)*</td>
<td>10-20 ml/kg (recent audit shows volumes to be 20-25 ml/kg over 4 hours)</td>
</tr>
<tr>
<td><strong>Cryoprecipitate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-10 ml/kg</td>
<td>10-20 ml/kg/hr</td>
</tr>
</tbody>
</table>

**Notes:**
Cellular components supplied for neonatal transfusion should be CMV negative.

* UK Department of Health recommended that FFP given to neonates and children up to 16 years of age be obtained from an area free of BSE and subjected to pathogen-reduction procedure.

---

## Blood component volumes and rates of administration for infants and children

<table>
<thead>
<tr>
<th>Component</th>
<th>Volume</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Red Cell concentrates</strong></td>
<td>Volume (ml) = desired Hb rise (g/dl) x wt. (kg) x 3</td>
<td>5 ml/kg/hr. (usual max rate 150 ml/hr.)</td>
</tr>
<tr>
<td><strong>Platelet concentrates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children &lt; 15kg 10-20 ml/kg</td>
<td></td>
<td>10-20 ml/kg/hr.</td>
</tr>
<tr>
<td>Children &gt; 15kg single apheresis or concentrate (approx. 300ml; actual volume on pack label)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*From the 'Handbook of Transfusion Medicine 5th Edition (2013)*
### FFP

<table>
<thead>
<tr>
<th></th>
<th>10-20 ml/kg</th>
<th>10-20 ml/kg/hr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cryoprecipitate</td>
<td>5-10 ml/kg (usual max 10 units – approx. 300ml)</td>
<td>10-20 ml/kg/hr. (i.e. over 30-60 mins)</td>
</tr>
</tbody>
</table>

### Notes:

Transfusion rates are based on current practice and are only for guidance, and will depend on the exact volume given and clinical status of the patient. For neonates and children, it is important to prescribe the exact volume and the time over which the transfusion should be given.

Blood components should be prescribed in volumes for children related to their weight, but not more than the standard accepted dose for adults.

### Exchange transfusion

Exchange transfusion has a recognised incidence of adverse events. It should only be conducted under the supervision of experienced personnel.

Exchange transfusion is generally performed for hyperbilirubinemia and/or anaemia, usually due to haemolytic disease of the newborn (HDN) or to prematurity.

For treating anaemia, a single volume (80-100 ml/kg) exchange is generally adequate.

For management of hyperbilirubinemia, a double volume exchange (160-200 ml/kg) is favoured.

Plasma-reduced blood with a haematocrit (HCT) of 0.5 - 0.6 is recommended.

Blood for exchange transfusion should always be irradiated if the patient has already had intrauterine transfusion (IUT).

Irradiated blood should also be used in other neonates unless delay in obtaining irradiated blood would cause clinically significant delay.

### Use of FFP in neonates

The only indications for FFP in neonates recommended in the recent BCSH guidelines and supported by evidence are:

- DIC
- Vitamin-K-dependent bleeding
- Inherited deficiencies of coagulation factors
The conventional dose of FFP is from 10-20 ml/kg.

FFP should never be used as simple volume replacement for polycythaemia. It is not effective in preventing interventricular haemorrhage in pre-term babies without evidence of coagulopathy.

The UK Department of Health now requires that children under 16 years of age requiring FFP should receive pathogen-reduced FFP of non-UK origin.

Further Specific Neonatal Guidelines are available on the PHNT Neonatal Intensive Care unit.

26 Transfer of blood and blood components outside of UHP

Blood and/or Blood products must never be transferred outside of the Trust unless directed by Blood bank staff.

If Blood or Blood products are required to be transferred outside of the Hospital, please inform Blood bank immediately.

27 Overall Responsibility for the Document

Hospital Transfusion Team and Hospital Transfusion Committee

28 Consultation and Ratification

The design and process of review and revision of this policy will comply with The Development and Management of Formal Documents.

The review period for this document is set as default of five years from the date it was last ratified, or earlier if developments within or external to the Trust indicate the need for a significant revision to the procedures described.

This document will be reviewed by the HTT and HTC and ratified by the Medical Director.

Non-significant amendments to this document may be made, under delegated authority from the Medical Director, by the nominated owner. These must be ratified by the Medical Director.

Significant reviews and revisions to this document will include a consultation with named groups, or grades across the Trust. For non-significant amendments, informal consultation will be restricted to named groups, or grades that are directly affected by the proposed changes.

29 Dissemination and Implementation

Following approval and ratification, this policy will be published in the Trust’s formal documents library and all staff will be notified through the Trust’s normal notification process, currently the ‘Vital Signs’ electronic newsletter.
Document control arrangements will be in accordance with The Development and Management of Formal Documents.

The document owner will be responsible for agreeing the training requirements associated with the newly ratified document with the named Medical Director and for working with the Trust’s training function, if required, to arrange for the required training to be delivered.

### 30 Monitoring Compliance and Effectiveness

- This policy will be reviewed every 5 years (unless required sooner) by the Hospital Transfusion Committee (HTC).
- The details of monitoring and staff responsibilities are described in Appendix 5.
- All transfusion related incidents and ‘near misses’ are reported locally to Q-Pulse and Datix and nationally to SHOT and the MHRA (SABRE).
- A reduction in the number of incidents is used as a measure of improved transfusion practice.
- Traceability of Blood/Blood products is maintained >99%
- Completion of PHNT Assurance requirements bi-monthly (Topic Compliance assessment document)

### 31 References and Associated Documentation

#### Standard Operating Procedures (SOP)

- SOP BB002 Blood and Blood Product Storage Facility Maintenance
- SOP-BB007 Group Specific Blood Issue.
- SOP-BB010 Cross Matching Bio-Vue.
- SOP-BB017 Discrepant Blood Grouping Results.
- SOP-BB018 Electronic Issue.
- SOP-BB020 Exchange and Intra-uterine Transfusion.
- SOP-BB024 Blood Stock Management.
- SOP-BB042 No Test.
- SOP-BB043 Paediatric X-match Request.
- SOP-BB045 Sample Sorting.
• SOP-BB047 Transfusion Reaction Investigation.
• SOP-BB054 Cross Match Request.
• SOP-BB055 Electronic Issue Surgical Patients.
• SOP-BB060 Blood in Transit.
• SOP-BB063 Massive Haemorrhage Protocol.
• SOP-BB065 Transport of Blood to other Trusts. (Form BBWF01)
• SOP-BB067 Telephone Requests.
• SOP-BB074 Validation of Electronic Issue
• SOP-BB078 Traceability.


The Blood Safety and Quality Regulations. Dept. of Health (2005)


Consent: patients and doctors making decisions together. General Medical Council (2nd June 2008).

SaBTO Patient Consent for Blood Transfusion, October 2011.


Developing a Blood Conservation Care Plan for Jehovah’s Witnesses with Malignant Disease Hospital Information Services for Jehovah’s Witnesses, IBSA House, The Ridgeway, London.


**Appendix 1: Blood Transfusion Algorithm**

**Does the patient need a blood transfusion?**

- **Yes**
  - Is the patient having surgery?
    - **Yes**
      - Consider other alternatives for blood transfusion: i.e. treatment of underlying cause for anaemia i.e. iron deficiency
    - **No**
      - Does the patient still need a blood transfusion?
        - **Yes**
          - Give appropriate verbal and written information to the patient and/or carer and document in the patient’s medical records.

**Consider Alternatives for Blood transfusion as follows:**

Offer oral iron before and after surgery to patients with iron deficiency anaemia.

Consider intravenous iron before or after surgery for patients who:

- Have iron deficiency anaemia and cannot tolerate or absorb oral iron
- Are diagnosed with functional iron deficiency
- Are diagnosed with iron deficiency anaemia and the interval between diagnosing and surgery is predicted to be short for oral iron to be effective

Offer TXA to adults undergoing surgery who are expected to have at least >500ml blood loss.

Consider intraoperative cell salvage with TXA for patients who are expected to lose a very high volume of blood.

**Transfuse the patient**

**Red Cell (RBC) recommendations**

Use restrictive thresholds for patients who do not:

- Have a major haemorrhage or
- Have acute coronary syndrome or
- Need regular transfusions for chronic anaemia

Restrictive threshold of 70g/l or 80g/l in patients with acute coronary syndrome

**After each RBC unit, clinically re-assess and check haemoglobin levels, and give further RBC transfusions if required.**

**Platelet recommendations**

Offer platelet transfusions to patients with thrombocytopenia who have clinically significant bleeding (WHO grade 2) and a platelet count below 30x10^9 per litre.

Use a higher platelet threshold (up to 100x10^9 per litre) for patients with thrombocytopenia and either, Severe bleeding (WHO 3 or 4) or bleeding in critical sites, such as CNS including eyes.

Offer prophylactic platelet transfusions to patients with a platelet count below 10x10^9 per litre, who are not having invasive procedures or surgery, and do not have any of the following conditions: Chronic Bone marrow failure, Autoimmune thrombocytopenia, Hepatitis induced thrombocytopenia, Thrombotic thrombocytopenia purpura.

Consider prophylactic platelet transfusions to raise the platelet count above 50x10^9 per litre, in patients who are having an invasive procedure/surgery.

Consider a higher threshold for patients with a high risk of bleeding who are having invasive procedures/surgery. Considering, the procedure the patient is having, the cause of the thrombocytopenia and whether the patient’s platelet count is falling.

Do not routinely transfuse more than a single dose of platelets.

Re-assess the patient’s clinical condition, check platelet count after each platelet transfusion and give further doses if required.

**Fresh Frozen Plasma (FFP) recommendations**

Only consider FFP for patients without major haemorrhage, but with Do not offer FFP to correct abnormal coagulation in patients who:

- Are not bleeding (unless they are having invasive procedures or surgery with a risk of significant bleeding)
- Need reversal of a Vitamin K antagonist

Reassess patients clinical condition, repeat coagulation tests and give further doses if clinically significant bleeding, if they have abnormal coagulation results.

**Cryoprecipitate recommendations**

Consider cryoprecipitate transfusions for patients without major haemorrhage, if they have clinically significant bleeding and a fibrinogen below 2g/l.

Consider prophylactic cryoprecipitate for patients with a fibrinogen below 1.8g/l who are having an invasive procedure or surgery with a risk of clinically significant bleeding.

Reassess patients clinical condition, repeat fibrinogen levels and give further doses if clinically significant bleeding, if they have abnormal coagulation results.

**Prothrombin Complex Concentrate**

Please refer to: Guidelines for Octaplex to rapidly reverse oral anticoagulation in the context of life threatening bleeding.
Appendix 2: Massive Transfusion Protocol (General)

START HERE
- On suspicion of or actual haemorrhagic shock or if need for fluid resuscitation is identified:
  - Between 0800 – 1730, RING Blood Bank Hotline on 52828
  - Between 1730 – 0800 BLEEP 0871
- Say to the laboratory, “I want to trigger the Massive Transfusion protocol”
  You will be asked to state your location and patient’s surname, hospital number and date of birth.
- Any future communication during this time should be preceded by, “this call relates to the Massive Haemorrhage in ________”

Massive Transfusion Pack 1
- 4 x O Rh D Neg (Emergency) RBC
- 4 x AB FFP
- NB: FFP to be collected from lab reception, FFP takes 30 minutes to defrost

At earliest opportunity take bloods to include:
- FBC, U&E, Clotting, ABG
- and take blood sample for crossmatch with Blood Bank.
All samples must be hand delivered.

STILL BLEEDING?
- Call Blood bank for Pack 2

Massive Transfusion Pack 2
- 4 x Group Specific FFP
- 4 x Group Specific RBC
- This should be available in 40 minutes from receipt of sample.

Re-assess
- Suspected continuing haemorrhage requiring further transfusion?
- Contact Haematologist who will ask:
  - What is patient pH?
  - What is patient temperature?

STILL BLEEDING?
- Call Blood bank for Pack 3

Massive Transfusion Pack 3
- 4 x Group Specific RBC
- 4 x Group Specific FFP
- 1 x ATD Platelets
- Give location of the patient.
- Confirm when product available.
- Arrange collection.
- Consider Ca

If group specific blood not available: further O Rh negative blood will be supplied

Use results to guide further blood component therapy.
- Aim for:
  - Hb > 80-100 g/L
  - Platelets > 100 x 10^9/L
  - PT < 17 secs
  - APTT < 40 secs
  - Fibrinogen > 1.5 g/L
  - Ca^+ (on ABG) > 1.0 mol/L

If Fibrinogen < 1.0 g/L:
- 2 x packs of Cryoprecipitate

Once Pack 3 administered:
- check:
  - FBC
  - PT/INR
  - Fibrinogen

Blood Bank Hotline 52828 (out of hours, weekends and bank holidays BLEEP 6971)
- Blood Bank - 52465
- To contact on-call Consultant Haematologist: Switchboard. Transfusion Practitioners 31467 BLEEP 0094/009

APTT - Activated Partial Thromboplastin Time
ABG - Arterial Blood Gas
ATD - Adult Therapeutic Dose
BMS - Bio Medical Scientist
FBG - Full Blood Count
FFP - Fresh Frozen Plasma
Hb - Haemoglobin
TXA - Tranexamic acid
PT - Prothrombin Time
RBCC - Red Blood Cells
SBP - Systolic Blood Pressure
U+E - Urea and Electrolytes

Including Trauma, Paediatrics and Obstetrics TRW.HGV.POL.533.3 Massive Transfusion Policy v3.0 Final Version 2015.docx
Appendix 3: Continued Consent Form for long term transfusion

**Consent for continued blood component transfusion**

As part of your/your child’s medical condition, your doctor considers it necessary for you/your child to have more regular transfusion of blood components (‘blood transfusion’). This may be red cells (blood), platelets, plasma, cryoprecipitate, or granulocytes, or a combination of components.

Although blood transfusion is generally quite safe, there are some potential risks associated with this treatment. Your doctor/nurse will explain these risks to you and will offer you an information leaflet. Sometimes patients experience a mild reaction such as a fever or skin rash. In the UK the risk of contracting a virus such as hepatitis or HIV from blood transfusion is extremely small; the actual risk of contracting vCJD through blood is unknown, but appears to be extremely small. Very rarely patients receiving a blood transfusion may have a significant allergic reaction or develop other complications such as haemolysis (breakdown of red cells in the blood), respiratory complications or a bacterial infection. There is also a small risk of receiving the wrong blood, however there are stringent procedures in place to minimise this.

In addition to the risks above associated with each blood transfusion, regular red cell transfusions may be associated with a risk of iron overload. This possibility should be discussed with your doctor/nurse.

In some cases there may be a suitable alternative to receiving donated blood. Your doctor or nurse will explain if this is possible in your case. You can find more information about this in the patient information leaflet.

Once you have read the information leaflet provided, discussed the issues above with a doctor/nurse and asked questions we would be grateful if you could sign the consent form below to indicate that you understand the reason for blood transfusion and the risks associated with it.

Written consent is being taken in advance, but verbal consent will be confirmed with you at each hospital attendance for blood transfusion.

---

**Statement of healthcare professional**

I have explained the reason for blood transfusion including benefits, potential risks, and suitable alternative options to the patient/parent, and have offered/given a blood transfusion information leaflet to the patient/parent. I have also explained how long they are likely to need to receive blood transfusions.

**Indication:**

**Benefits:**

**Information/Risks (tick if/when discussed):**

- Given/offered a blood transfusion information leaflet
- Small risk of receiving incorrect blood and procedures in place to prevent this
- Extremely small risk of viral infection such as Hepatitis or HIV
- Unknown but probably extremely small risk of vCJD
- Risk of a transfusion reaction - see risks described above and possible adverse symptoms of blood transfusion

Name........................................ Grade & Specialty........................................
Signature........................................ Date........................................

Statement of Patient/Parent/Guardian/LPA 'attorney'
I have read and understood the above information and consent to blood transfusion.
Name.......................................................... Date........................................
Signature........................................ Date........................................

Statement of Interpreter (if applicable)
I have interpreted the above information to the patient in a way I believe he/she can understand.
Name of Interpreter ................................ Contact number ...............................
Signature........................................ Date ........................................

Notes for healthcare professionals:
* Once completed file in the patient's clinical notes;
* If the patient wishes to receive a copy of this consent form, please photocopy for them;
* Consent for long term transfusion should be subject to review as risks and alternatives can change over the course of time; ideally consent should be 're-validated' every 12 months;
* As this is long term consent you should consider the need for assessment of potentially changing mental capacity of the patient.

Notes for patient:
* You are not bound by the decision you made when signing this form, and you can change your decision (i.e. withdraw consent) at any time;
* Should you wish to reconsider your consent you need to discuss this with your doctor/nurse;
* Once you have received any sort of blood component transfusion, you may no longer donate blood yourself.

Possible adverse symptoms of blood transfusion
- Feeling feverish, hot and clammy or shivering/chills
- Breathing problems or wheeziness
- Feeling sick or vomiting
- Swelling of any part of the body, especially around the mouth, lips and face
- Extreme tiredness or generally feeling unwell
- Passing blood in your urine; or passing much less, or very dark, urine
- Itchy skin rash
- Pain in the limbs, chest or tummy, or in the lower back ( loin pain)
- Unexpected or unexplained bruising
- Jaundice (yellow colour of the white of your eyes or your skin)
Appendix 4: Blood transfusion request form – front and back

RULES FOR ELECTRONIC ISSUE

One previous sample and NO ANTICODIES

Second sample required

Two previous samples and NO ANTICODIES

Most recent sample within 2 months.

May be suitable if NO TRANSFUSION during this time.

Frequency Transfused Patients:

Transfused

Sample required

0-24 hours

No samples required

< 2 units

No blood before transfusion

< 14 days

1 week before transfusion

< 29 days - 3 months

1 week before transfusion

Patient with antibodies will need to be reviewed for electronic issue. Therefore, you must check blood availability prior to invasive procedures as there could be a significant delay in obtaining the blood.

Red cell concentrates

Consider single unit transfusion only if anaemia reversible.

- R1 Acute bleeding with haemodynamic instability. When OGGC has been achieved, use Hb transfusion below.
- R2 Haemoglobin level <70g/L. Stable patient with acute anaemia. Use packed RBC 70g/L and larger Hb 70g/L.
- R3 Haemoglobin level <100g/L. If cardiovascular disease, use threshold Hb <80g/L, and larger Hb 80-100g/L.
- R4 Chronic transfusion dependent anaemia. Maintain Hb to prevent symptoms. Get individualised threshold (start at Hb 80g/L), and adjust as required.
- R5 Radiotherapy maintenance Hb > 100g/L. Limited evidence for maintaining Hb >100g/L in cardiac, unless otherwise contraindicated.

Exchange transfusion

Fresh frozen plasma (15ml/kg)

- F1 Major haemorrhage. FFP: RBC ratio 1:1 in trauma, 1:2 in other haemorrhage. Check bleeding under control, and coagulation tests below as a guide.
- F2 PT/INR >15 with bleeding clinically significant bleeding without major haemorrhage. FFP required if coagulopathy. Aim for PT and APTT ratio ≤1.5.
- F3 PT/INR >15 and procedure. Propensity use when coagulopathy is apparent, DIC and massive procedure planned with risk of significant clinical bleeding.
- F4 Liver disease with PT/INR >2 and procedure. FFP should not be used in non-biopsy patients or pre-invasive procedure when PT/INR > 1.5.
- F5 TTP/Peliosis exchange.
- F6 Replacement of single coagulation factor.

Platelets (1 unit = 1 adult therapeutic dose or 1A)

Immunopopuse:

- 1a Platelet crossmatch (Serological antibodies not detected).
- 1b Recipient had previous sensitization.

Indication Codes for Transfusion

Platelet crossmatch (Serological antibodies not detected).

Immunopopuse:

- 1a Platelet crossmatch (Serological antibodies not detected).
- 1b Recipient had previous sensitization.

Cryoprecipitate

Use with FFP unless isolated fibrinogen deficiency is pooled units for an absolute increase fibrinogen dosage, by 1g/L.

- C1 Mild body significant bleeding and fibrinogen <1.5g/L (no deficit bleeding).
- C2 Fibrinogen <1g/L, and pre-procedure.
- C3 Bleeding associated with thrombocytopenia.
- C4 Inherited antifibrinolytic abnormality: Fibrinogen concentrate test available.

TRW.HGV.POL.269.9 Hospital Transfusion Policy
### Appendix 5: Monitoring and Staff responsibilities

<table>
<thead>
<tr>
<th>All staff that take part in any aspect of transfusion from blood sampling to blood or blood product administration must complete the required Trust transfusion eLearning modules.</th>
</tr>
</thead>
</table>
|  • No member of staff will undertake any aspect of the transfusion process without having an ‘in date’ transfusion competency.  
  • Staff who sample patient's blood must have in addition completed the Venepuncture course.  
  Maintain safe practice as detailed in the Hospital Transfusion Policy. |

<table>
<thead>
<tr>
<th>Safe Care Group (SCG) formerly the Clinical Governance Steering Group (CGSG)</th>
</tr>
</thead>
</table>
|  The SCG has other responsibilities but have only included those as they affect transfusion;  
  • The SCG receives reports and updates via the HTC minutes.  
  • The SCG oversees serious clinical incidents and ensures their proper investigation, reporting to the Trust board.  
  • Signs off the Hospital Transfusion Policy along with the Chair of the HTC. |

<table>
<thead>
<tr>
<th>Hospital Transfusion Committee (HTC)</th>
</tr>
</thead>
</table>
|  • Endorses Trust compliance with the Hospital Transfusion Policy through its membership made up of representatives from all specialities that use blood and blood products.  
  • Two Patient Representatives are invited as members of the HTC.  
  • Minutes of meetings go to the SCG and HMSC.  
  • Receive minutes from the HTT. |

| Hospital Transfusion Team (HTT)  
Made up of members of the Blood Bank Meeting group;  
  • Chair, Haematology Consultant in charge of Transfusion  
  • Chair of the HTC  
  • Operations Manager  
  • Blood Bank Manager  
  • SPOT  
  • Transfusion Practitioners  
  • Quality Control Manager  
  • Health and Safety Manager  
and others as invited |
|---|
|  • Reviews the Hospital Transfusion Policy.  
  • Monitor the Trust staff transfusion competency levels.  
  • Continuously monitor the safety of the blood and blood product transfusion process.  
  • Monitor and investigate serious adverse events on blood and blood product transfusions.  
  • Ensure the appropriate use of blood and blood products and the use of alternatives.  
  • Participate in the Blood Stocks Management Scheme and manage blood and blood product shortages with the Emergency Blood Stock Management Plan.  
  • Monitor the implementation of the electronic blood tracking system.  
  • Minutes of meetings go to the HTC.  
  • Monitor the trust-wide compliance of the Hospital Transfusion Policy. |

<table>
<thead>
<tr>
<th>Medical staff</th>
</tr>
</thead>
</table>
|  • Give instruction by prescribing blood and blood products using the Trust prescribing process.  
  • Request blood and blood products using the Trust sample request form giving all relevant information, e.g. special requirements such as CMV Neg products.  
  • Give all instruction and requesting in accordance with the Hospital Transfusion Policy. |
Appendix 6: Transfusion Clinical Record Sheet

Transfusion Clinical Record Sheet

Consultant: ........................................
Department: ........................................

Transfusion Clinical Record – use for Blood, FFP, Platelets or Cryo

Reason(s) for transfusion:
- Emergency blood loss:
- Critically unwell:
- Symptomatic anaemia:
- Pre-transfusion Hb:
- Other (specify):

Has the patient given their verbal consent?:
- Yes
- No

Date: __/__/____
Time: __:__:__
Dr/Nurse Sig.: __________________________
Signature: __________________________
PRINT NAME: __________________________

Outcome of transfusion:
- Hb it:
- Clinical improvement:
- Post transfusion Hb:
- Transfusion reaction
  (If yes record details in notes)
- Yes
- No

Date: __/__/____
Time: __:__:__
Doctor or Nurse Practitioner signature:
Signature: __________________________
PRINT NAME: __________________________

Transfusion label(s):
- Blood, FFP, Platelets or Cryo
- UNIT 1 label
- UNIT 2 label

More labels can be placed on the reverse side

Page 1 of 2
Blue section:
Sign the label when transfusion commenced and on completion return with the blood bag to blood bank.

First red section:
This is a sticky label to be placed in the Transfusion clinical record sheet (page 66) and placed in the patient medical record.
This is the legal documentation that the transfusion has occurred.

Second red section:
Used by blood bank staff to label other blood products/ record issue of units.
Appendix 8: Emergency Blood Labels

It is essential that the receiving patient’s details are recorded on the Emergency Blood identification form before returning blood bag to blood bank.
Appendix 9: Acute transfusion reactions flow chart

Evidence of:
- Life-threatening
- Airway and/or breathing and/or Circulatory problems and/or wrong blood given and/or evidence of contaminated unit.

Yes

Inform Medical staff

SEVERE/LIFE THREATENING
- Call for urgent medical help
- Initiate resuscitation ABC
- Is haemorrhage likely to be causing hypotension? If not discontinue transfusion or do not discard implicated unit/s
- Maintain venous access
- Monitor patient e.g. TPR, BP, urinary output and oxygen saturations

If likely anaphylaxis/severe allergy, follow anaphylaxis pathway
- If bacterial contamination likely, start antibiotic treatment
- Use BP, pulse, urine output (catheterise if necessary) to guide intravenous physiological saline administration
- Inform Hospital Transfusion Department
- Return unit (with administration set) to transfusion Laboratory
- If bacterial contamination suspected, contact Blood services to discuss recall of associated components
- Perform appropriate investigations

Report at HTC
Report to SHOT/MHRA as appropriate

Transfusion related event
Transfusion Unrelated

No

Moderate
Temperature 39°C or above or rise >2°C and/or other symptoms/signs apart from pruritus/rash only
Consider bacterial contamination if the temperature rises above and review patients underlying condition and transfusion history
Monitor patient more frequently e.g. TPR, BP, oxygen saturations, urinary output

If consistent with underlying condition or transfusion history, consider continuation of transfusion at a slower rate and appropriate symptomatic treatment

Document on patient that no MHTC review SHOT report necessary

Mild
Isolated temperature 38°C or above and a rise of 1-2°C or more
Pruritus/rash only
Continue Transfusion
Consider symptomatic treatment
Monitor patient more frequently as for moderate reactions
If signs/symptoms worsen, manage as moderate/severe reaction (see left)
Appendix 10: Transfusion reaction reporting card

TRANSFUSION REACTION CARD

Patient details
Full name
Date of birth
Hospital number

Ward
Consultant
Diagnosis

Date and time of reaction
Clinical details of reaction

Actions taken:
☐ Repeat cross-match (from the opposite arm)
☐ Inform blood bank (52465 / bleep 0871 out of hours)
☐ Return the blood bag with giving set still attached (together with the repeat sample)
☐ Report on local reporting system e.g. Datix

Reported by:
Date:

For laboratory use only

<table>
<thead>
<tr>
<th>Specimen Number</th>
<th>Date</th>
<th>Pre Transfusion</th>
<th>Date</th>
<th>Post Transfusion</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC and 8th Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibody Screen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance of Plasma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes

Completed by: Date:

BBWF005 Version 4/ PILOT Issue date 13 June 2018
## Appendix 11: TACO Checklist

<table>
<thead>
<tr>
<th>TACO Checklist</th>
<th>Red Cell Transfusion for Non-Bleeding Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Heart" /></td>
<td>Does the patient have a diagnosis of ‘heart failure’ congestive cardiac failure (CCF), severe aortic stenosis, or moderate to severe left ventricular dysfunction?</td>
</tr>
<tr>
<td><img src="image" alt="Lungs" /></td>
<td>Is the patient on a regular diuretic?</td>
</tr>
<tr>
<td></td>
<td>Is the patient known to have pulmonary oedema?</td>
</tr>
<tr>
<td></td>
<td>Does the patient have respiratory symptoms of undiagnosed cause?</td>
</tr>
<tr>
<td><img src="image" alt="Water droplet" /></td>
<td>Is the fluid balance clinically significantly positive?</td>
</tr>
<tr>
<td></td>
<td>Is the patient on concomitant fluids (or has been in the past 24 hours)?</td>
</tr>
<tr>
<td></td>
<td>Is there any peripheral oedema?</td>
</tr>
</tbody>
</table>

### If ‘yes’ to any of the above

1. Review the need for transfusion (do the benefits outweigh the risks)?
2. Can the transfusion be safely deferred until the issue can be investigated, treated or resolved?
3. Consider body weight dosing for red cells (especially if low body weight)
   - Transfuse one unit (red cells) and review symptoms of anaemia
   - Measure the fluid balance
   - Consider giving a prophylactic diuretic
   - Monitor the vital signs closely, including oxygen saturation
## Dissemination Plan and Review Checklist

### Dissemination Plan

<table>
<thead>
<tr>
<th>Recipient(s)</th>
<th>When</th>
<th>How</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Trust staff</td>
<td>Vital Signs</td>
<td>Information Governance Team</td>
<td></td>
</tr>
</tbody>
</table>

### Previous Documents

**Action to retrieve old copies**

This will be managed by the Transfusion Practitioner team.

---

### Review Checklist

<table>
<thead>
<tr>
<th>Title</th>
<th>Is the title clear and unambiguous?</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Is it clear whether the document is a policy, procedure, protocol, framework, APN or SOP?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Does the style &amp; format comply?</td>
<td>✓</td>
</tr>
<tr>
<td>Rationale</td>
<td>Are reasons for development of the document stated?</td>
<td>✓</td>
</tr>
<tr>
<td>Development Process</td>
<td>Is the method described in brief?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Are people involved in the development identified?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Has a reasonable attempt has been made to ensure relevant expertise has been used?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Is there evidence of consultation with stakeholders and users?</td>
<td>✓</td>
</tr>
<tr>
<td>Content</td>
<td>Is the objective of the document clear?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Is the target population clear and unambiguous?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Are the intended outcomes described?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Are the statements clear and unambiguous?</td>
<td>✓</td>
</tr>
<tr>
<td>Evidence Base</td>
<td>Is the type of evidence to support the document identified explicitly?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Are key references cited and in full?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Are supporting documents referenced?</td>
<td>✓</td>
</tr>
<tr>
<td>Approval</td>
<td>Does the document identify which committee/group will review it?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>If appropriate have the joint Human Resources/staff side committee (or equivalent) approved the document?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Does the document identify which Executive Director will ratify it?</td>
<td>✓</td>
</tr>
<tr>
<td>Dissemination &amp; Implementation</td>
<td>Is there an outline/plan to identify how this will be done?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Does the plan include the necessary training/support to ensure compliance?</td>
<td>✓</td>
</tr>
<tr>
<td>Document Control</td>
<td>Does the document identify where it will be held?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Have archiving arrangements for superseded documents been addressed?</td>
<td>✓</td>
</tr>
<tr>
<td>Monitoring Compliance &amp; Effectiveness</td>
<td>Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Is there a plan to review or audit compliance with the document?</td>
<td>✓</td>
</tr>
<tr>
<td>Review Date</td>
<td>Is the review date identified?</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Is the frequency of review identified? If so is it acceptable?</td>
<td>✓</td>
</tr>
<tr>
<td>Overall Responsibility</td>
<td>Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Core Information

<table>
<thead>
<tr>
<th>Date</th>
<th>22/06/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Hospital Transfusion Policy Version 9</td>
</tr>
<tr>
<td>What are the aims, objectives &amp; projected outcomes?</td>
<td>No doctor, nurse or allied professional shall take part in any aspect of transfusion unless competent, by way of assessment, to do so. Ensure a safe, appropriate and efficient transfusion service to all patients. To provide transfusion advice to all staff and patients. To consider alternatives to transfusion wherever possible.</td>
</tr>
</tbody>
</table>

### Scope of the assessment

### Collecting data

<table>
<thead>
<tr>
<th>Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>There is no evidence to show an impact in this area. This policy can be made available in different languages on request.</td>
</tr>
<tr>
<td>Religion</td>
<td>There is no known impact other than to the Jehovah’s Witnesses. There is a close partnership between the transfusion practitioners and the JW’s including being involved in staff education.</td>
</tr>
<tr>
<td>Disability</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>Sex</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>Gender Identity</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>Age</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>Socio-Economic</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>Human Rights</td>
<td>There is no known evidence to show an impact in this area.</td>
</tr>
<tr>
<td>What are the overall trends/patterns in the above data?</td>
<td>No trends or patterns identified at this stage.</td>
</tr>
<tr>
<td>Specific issues and data gaps that may need to be addressed through consultation or further research</td>
<td>There are no other issues or data gaps. Should any arise then an early and prompt adjustment to the policy will be made through the control of the Hospital Transfusion Committee.</td>
</tr>
</tbody>
</table>
### Involving and consulting stakeholders

| Internal involvement and consultation | Hospital Transfusion Team  
     | Hospital Transfusion Committee. |
|--------------------------------------|----------------------------------|
| External involvement and consultation | Jehovah’s Witness Hospital Liaison Committee. |

### Impact Assessment

| Overall assessment and analysis of the evidence | This is regularly monitored and overseen by the Hospital Transfusion Committee. |

### Action Plan

<table>
<thead>
<tr>
<th>Action</th>
<th>Owner</th>
<th>Risks</th>
<th>Completion Date</th>
<th>Progress update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continual monitoring to collect any data requiring changes to the policy</td>
<td>C Lowe</td>
<td>None Known</td>
<td>As required</td>
<td></td>
</tr>
</tbody>
</table>