Blood Transfusion Policy and Procedure

Target audience:	All staff involved in the clinical aspects of the transfusion process (e.g. staff who take blood samples, support staff who collect blood from storage as well as staff who authorise or administer blood components).
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Document history

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	transfusion, Edinburgh: SNBTS Available at: www.learnbloodtransfusion.org.uk 18. Skills for Health (2015). Clinical/Care UK Core Skills Training Framework 19. The Blood Safety and Quality Regulations (2005). 20. Patient Blood Management. Information for patients. Available online at: http://hospital.blood.co.uk/media/28922/170215-27628-blc7152p-final.pdf 21. Will I need a blood transfusion? Available online at: http://hospital.blood.co.uk/media/28307/160511-27360-will-i-need-a-blood-transfusion-final.pdf 22. Information for patients who have received an unexpected blood transfusion. Available online at: http://hospital.blood.co.uk/media/2379/a6cc8e12-34b6-4494-baad-03fa381bb1e4.pdf 23. Will I need a platelet transfusion? Available online at: http://hospital.blood.co.uk/media/28305/160510-27363-will-i-need-a-platelet-transfusion-final.pdf 24. Will my baby need a blood transfusion? Available online at: http://hospital.blood.co.uk/media/28303/160509-27288-will-my-baby-blood-blc6112p-final.pdf 25. Will your child need a blood transfusion? Available online at: http://hospital.blood.co.uk/media/28304/160510-27362-pil-will-my-child-plasma-final.pdf
Associated documents (internal):	• Algorithm for management of bleeding and excessive anticoagulation in adult patients on warfarin Guideline for the Clinical Use of Blood Components [RWF-OPPPCSS-C-PATH40] • Hand Hygiene Policy and Procedure [RWF-OPPPCSS-C-PATH13] • Msoft/Bloodhound training checklist and competency assessment for staff who collect blood [available from the Transfusion Team only] • Policy for the Management of Patients who Decline Treatment with Blood Components [RWF-OPPPCSS-C-PATH2] • Policy and Procedure for Consent to Examination or Treatment [RWF-OPPPES-C-SM5] • Standard Operating Procedure for Prescribing, Preparing and Administering Injectable Medicines in Clinical Areas [SOPS/WI/SSW]

Keywords:	Red cells	Transfusion	Haemorrhage
	Crossmatch	Laboratory	Group and save
	Platelets	FFP	Cryoprecipitate
	Surgical blood ordering schedule	Msoft	Granulocytes
	Collection slip	Reaction	Bloodhound

Version control:		
Issue:	**Description of changes:**	**Date:**
8.0	• P2: Reference list up dated to include most recent guidelines. • P8: Blood transfusion: key points – Consent section also refers to documentation and use of the EDN. Collecting blood components from storage section clarifies when O Rh D negative red cells should be used and the risk associated with its use. The section describing the use of red label system has been removed and an additional point made about safe practice with the confirmatory sample. • Msoft/Bloodhound IT tracking system has been incorporated into transfusion practice throughout the Trust and the policy document has been altered throughout to reflect this in: Key Points (p8) and Overview of transfusion process (p14), sections 3.0, 5.5; 5.7, 5.9.4, 6.0; and Figures 2 and 3. • 3.0 Section added for Blood Component Traceability. • 4.0 Training and competency requirements altered to every three years for all staff in line with Skills for Health and NTC recommendations. • 5.2 Text concerning consent altered to reflect NICE guidelines. • 5.3.4 Section added highlighting information to be given to the patient and their GP at discharge. • 5.4.1 The Trust has introduced a confirmatory sample system for blood grouping prior to administration of blood components, this section has been altered to reflect this. • 5.6.4 and Figure 3 - The patient's medical healthcare record and the use of the red label system has been removed from the bedside checking procedure. • 5.8.2 Text added to include post-transfusion samples. • 5.9.1 Reworded to ensure clarity. • 5.9.3 Two units are now stored in the satellite blood bank in the Obstetric Department rather than four. • Appendix 4-4 Changed to include opting out of transfusion training. • Appendix 6 Has been extended to include specific patient groups • Appendix 9 Surgical Blood Ordering Schedule added to policy.	April 2016
8.1	• Removed references to Appendix 4-2-2 (Msoft/Bloodhound training checklist and competency assessment for staff who collect and administer blood); this is no longer used and has been archived.	January 2017
8.2	• Updates to the Policy have been suggested since its ratification by the PRC on 12/04/16, e.g. changes to the training regime), having been approved by the Hospital Transfusion Committee / appropriate governing committee) • Appendices 4.1 and 4.3 – These appendices were not presented alongside the Policy on12/04/16, although included	February 2017

Version control:		
Issue:	**Description of changes:**	**Date:**
	in the list of “Further Appendices”, as they were not yet ready for consideration. • Appendix 10 – additional appendix proposed since the policy was ratified on 12/04/16, having been approved by the Hospital Transfusion Committee / appropriate governing committee) • Addition of nurse authorisers of blood components to the policy.	
8.3	• Amendments made to allow for nurse authorisation of blood components • Combined the original appendices 6-1, 6-2 and 6-3 to one appendix (Appendix 6) with further guidance included for specific patient groups.	June 2017
9.0	• Competencies for blood collectors required once only (rather than every two years) as per NBTC Requirements for Training and Assessment in Blood Transfusion published in 2016. • In section 5.5.3, instruction has been added to allow blood collectors to retrieve blood from storage without a printed Msoft/Bloodhound slip. This is to allow for emergency situations in which components would not yet seen as be available on the system due to the rapidity of the clinical situation. Further step by step detail of this is given in Figure 2. • Consent for transfusion has been made a mandatory requirement and staff must check that consent has been documented in the healthcare record prior to starting the transfusion. This change is detailed in sections 3.0, 5.0 and 5.6.2. • Question relating to basic knowledge of blood groups has been added to the receiving and administering a blood component: assessment and declaration of competence (Appendix 4-1) as per SHOT recommendations, 2017 report. • TACO added – as per SHOT Recommendations 2017 report. • Clarification of the consent process for patients with chronic conditions that require frequent and ongoing treatment with blood components (e.g. MDS, leukaemia, thalassemia) (5.2.4)	April 2019

Summary for

Blood Transfusion Policy and Procedure

Maidstone and Tunbridge Wells NHS Trust is committed to safe blood transfusion processes and practices.

A blood transfusion is a potentially hazardous procedure which should only be undertaken when the benefit to the patient outweighs the risk. This policy sets out the correct practice for undertaking this procedure to maximise the safety of the patient incorporating both best practice and national guidelines.

Blood transfusion is a complex multi-stage process and each stage must be checked and documented. This policy outlines the whole process. Every aspect of procedural blood transfusion is covered by the policy.

Contents

1.0 Introduction, purpose and scope

Blood transfusion is a complex multi-stage process and each stage must be checked and documented. This policy outlines the whole process. Every aspect of procedural blood transfusion is covered by the policy. This policy is relevant to all staff involved in the transfusion chain (e.g. staff who take blood samples, support staff who collect blood from storage as well as staff who authorise or administer blood components).

2.0 Definitions/glossary

Term	Definition
ABC	Airway, Breathing, Circulation
ABG	Arterial Blood Gases
APTT	Activated Partial Thromboplastin Time
ARDS	Acute Respiratory Distress Syndrome
ATR	Acute Transfusion Reaction
Authorise	A blood component is not a drug and therefore they are authorised rather than prescribed
BMS	Biomedical Scientist
BP	Blood Pressure
CMV	Cytomegalovirus
Code Red	A major haemorrhagic emergency
Confirmatory sample	An additional sample required by the Transfusion Laboratory to check the patient's blood group
Cryo	Cryoprecipitate
CSW	Clinical Support Worker
CXR	Chest X-ray
Datix	Electronic incident reporting system, available via the Trust intranet
ED	Emergency Department
EDN	Electronic Discharge Notification
ESR	Electronic Staff Record
EU	European Union
Fate/fated	To confirm a blood component has been administered
FBC	Full Blood Count
FFP	Fresh Frozen Plasma
GP	General Practitioner
Hb	Haemoglobin
HIT	Heparin Induced Thrombocytopenia
HODU	Haematology and Oncology Day Unit
HTC	Hospital Transfusion Committee
HTT	Hospital Transfusion Team
IgA	Immunoglobulin A
IT	Information Technology
IV	Intravenous
MH	Maidstone Hospital
MHRA	Medicines and Healthcare products Regulatory Agency
Msoft/Bloodhound	IT blood tracking system
NHSBT	NHS Blood and Transplant (National Blood Service)
NTC	National Transfusion Committee

Term	Definition
Nurse Authoriser	Senior nurse who has attended and completed specialist NHSBT blood authorising course and completed in-house training under the supervision of a Haematology Consultant
ODP	Operating Department Practitioner
Out of hours	Between 21:00 and 08:00
PAS	Patient Administration System
PBM	Patient Blood Management – A multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion. Aims to ensure that patients receive best treatment in addition to avoiding inappropriate use of blood components.
PT	Prothrombin Time
PTP	Post Transfusion Purpura
RBCs	Unit of red blood cells
RM	Registered Midwife
RN	Registered Nurse
SABRE	Serious Adverse Blood Reactions and Events
SHOT	Serious Hazards of Transfusion
TACO	Transfusion Associated Circulatory Overload
TA-GvHD	Transfusion Associated Graft versus Host Disease
TPR	Temperature, Pulse and Respiration
Traceability	Legal requirement which mandates that transfused blood is fully traceable from recipient back to donor. Traceability is maintained at MTW with the Msoft/Bloodhound IT system in which the fate of unit of blood transfused are recorded (fated).
TRALI	Transfusion Related Acute Lung Injury
TSW	Theatre Support Worker
TWH	Tunbridge Wells Hospital

3.0 Duties

Person/Group	Duties
Hospital Transfusion Committee (HTC)	• Approving transfusion policies, procedures and guidelines • Monitoring provision of staff training and competency assessments • Reviewing trends relating to adverse events including 'near misses' • Making recommendations regarding the appropriate use of blood components within the Trust • Circulating relevant information to their colleagues and peers • Reporting to the Trust via the Pathology Directorate Board Meeting • Implementing of patient blood management
Hospital Transfusion Team (HTT)	• Reviewing adverse events including 'near misses' and initiating investigations where appropriate. • Monitoring and trending of adverse events • Reviewing and timely reporting of incidents to Serious Hazards of Transfusion (SHOT) and Serious Adverse Blood Related Events

Person/Group	Duties
	(SABRE) • Reviewing traceability of blood components administered within the Trust • Review blood component wastage • Reviewing transfusion policies, procedures to meet established and new guidelines • Raising the awareness of Transfusion issues within the Trust via audit and education • Monitoring and review of staff training • Completing local, Regional and National audits relating to transfusion • Implementation of Patient Blood Management (PBM)
Clinical Managers	• Ensuring that, at any time, adequate numbers of staff in their clinical area are trained and competent in transfusion, including the Msoft/Bloodhound system • Ensuring that their staff have the necessary skills and training to perform blood transfusion procedures, including the emergency treatment of anaphylaxis • Ensuring that staff involved in the blood transfusion process undertake the three yearly mandatory transfusion training and complete a competency assessment relevant to their role • Ensuring traceability of blood components administered in their area • Ensuring that adverse events and near misses involving blood transfusion in their clinical area are reported via Datix
Medical Staff and Nurse Authorisers	• Medical staff and Nurse Authorisers are responsible for: • Completing the three yearly Mandatory Blood Transfusion Training • Completing of a transfusion competency assessment relevant to their role • Obtaining and documenting patient verbal consent, and offering transfusion information literature. • Identifying the patient and labelling cross match samples in accordance with the Trust procedure • Requesting blood and providing sufficient information to the Transfusion Laboratory staff, including patient's diagnosis and special requirements • Authorising blood components • Checking the identity of the patient and the blood component at the patient's side (anaesthetic medical staff only) • Communicating (and documenting) any special instructions to the nursing staff, e.g. the decision to transfuse overnight, the requirement for irradiated components; the "Record of Decision to Transfuse" form which can be found in Appendix 10 • Clinical management and reporting of transfusion reactions (medical staff only)

Person/Group	Duties
Nurses (RNs), Midwives (RMs) and Operating Department Practitioners (ODPs)	• Completing the three yearly Mandatory Blood Transfusion Training • Undertaking a transfusion competency assessment relevant to their role • Ensuring an appropriate transfusion leaflet has been provided to their patients • Checking the identity of the patient and the blood component at the patient's side • Monitoring of the patient during transfusion and ensuring accurate recording of observations. (If assessed as appropriate, observations may be delegated to an appropriately trained CSW, however the RN, RM or ODP remains accountable. It remains the responsibility of the accountable practitioner to oversee the patient's care throughout the transfusion and in the event of an adverse reaction, to stop the blood and contact the medical team). • The involvement of medical staff in the management of any potential transfusion reaction or adverse incidents • Reporting adverse transfusion reactions and events via Datix • Ensuring that blood components that they have administered are traceable by recording the transfusion on the Msoft/Bloodhound System
Transfusion Laboratory Staff	• Undertaking competency assessment relevant to their role • Blood grouping and compatibility testing • Examining blood components for any unusual features which may cause problems • Ensuring that the labelling of request forms and blood samples comply with local and national guidelines • Checking that any special requirements, of which they have been notified, (e.g. irradiated) have been met • Updating the laboratory computer system when they are notified of any special blood requirements • Checking the expiry date of each product and ensure suitability for issue • Ensuring blood components are correctly labelled – that identification details of patient and blood to be transfused are the same on the compatibility label attached to the pack • Investigating and reporting to SHOT and SABRE of adverse incidents related to practice in the laboratory
Clinical Support Workers (CSWs) and Theatre Clinical Support Workers (TSWs)	• Completing the three yearly Mandatory Blood Transfusion Training • Undertaking a transfusion competency assessment if their role involves obtaining a sample for transfusion or collecting blood components from storage • Informing the nurse in charge of the patient of any abnormal clinical observations or adverse incidents

Person/Group	Duties
Phlebotomists	• Completing the three yearly Mandatory Blood Transfusion Training • Undertaking a transfusion competency assessment in obtaining a sample for transfusion • Identifying the patient and labelling blood sample in accordance with the Trust procedure
Portering staff	• Completing the two yearly Mandatory Blood Collectors Training specific to their role • Undertaking a transfusion competency assessment in the collection of blood components • Informing the Transfusion Laboratory staff of any incidents relating to the transportation of blood components

4.0 Training/competency requirements

4.1 Blood Transfusion Training is mandatory for all staff involved in the transfusion process. Staff who collect units of blood must have training in this aspect of transfusion every two years. Staff involved in the other aspects of blood transfusion must receive transfusion training at induction and thereafter refresher training at least once every three years. Transfusion training is required for all staff involved in the transfusion process which includes the decision to transfuse, transfusion sampling, collection of blood components from storage, administration and monitoring of a transfusion.

4.2 Training sessions are available on the:

- Trust induction for clinical staff
- Mandatory clinical update day
- Induction for new medical staff
- For porters and phlebotomists arranged directly with the Transfusion Practitioner
- Ward based and local training sessions are available via arrangement with the Transfusion Practitioner
- Trust e-learning

4.3 Records of all training are added to the Trust Training database. All staff involved in the blood transfusion process should be competency assessed in line with the Skills for Health competency framework. Competency assessment will depend upon which part of the process the member of staff performs.

4.4 Competency assessment will be both observational and knowledge based questions. All Competency assessments are required once only. These assessments can be done whilst observing a member of staff performing the task being assessed or by using the competency tool kits. A copy of the competency document and the completed booklet must be given to the candidate's line manager for them to sign. Competency documents will then be held by the line manager in the staff member's personal file. A copy of the competency will be sent to Education and Training for insertion in the candidates Electronic Staff Record (ESR). For nursing staff the competency is also added to the ward completeness reports.

Process to be competency assessed	Registered Nurses (RNs)	Registered Midwives (RMs)	Operating Department Practitioners (ODPs)	CSWs (only in certain areas e.g. oncology)	Porters	Phlebotomists	Junior Medical staff	Trauma Team	Anaesthetic Medical staff
Sample collection	✓ (Only in certain areas)	✓		✓		✓	✓	✓	✓
*Blood component collection		✓ (RMs working on Delivery Suite, TWH)	✓	✓	✓				
Blood component checking and administration	✓	✓	✓						✓

4.5 Those staff that fall into the categories above but who never have anything to do with this aspect of the blood transfusion process do not require to be competency assessed (e.g. RNs working in Eye Outpatients). In such circumstances, a 'blood transfusion training and competency assessment opt out form' may be completed and sent to Learning and Development Department **(see appendix 4-3)** It is the responsibility of the line manager to ensure that their staff have had the appropriate competency assessments.

For the competency documents, please refer to **Appendices 4-1 to 4-3** (Note: "Msoft/Bloodhound training checklist and competency assessment for staff who collect blood" is only available via the Transfusion Team).

5.0 Summary of procedure

Table 1

Section	Key points	Section in policy
Mistakes	• Mistakes with patient identity are the most common cause of transfusion error • Be meticulous when confirming / checking a patient's identity. • Use the patient's identification band at every stage of the transfusion process in order to be sure that you have the right person	See Sections 5.3. 5.4, 5.5
Authorising	• Use the 'Guideline for Clinical Use of Blood Components' to guide you [RWF-OPPPCSS-C-PATH40] Standard administration times: • Red cells: 2 to 3.5 hours; FFP: 30 minutes; Cryoprecipitate: 30 to 60 minutes (total dose); Platelets: 30 minutes; Granulocytes: 1 to 2 hours (total dose)	See Section 5.3
Consent and documentation	• Explain the reason for and the risks, benefits and alternatives to transfusion to the patient. • Document that you have obtained consent in the patient's healthcare record • Ensure that the EDN/discharge letter informs the patient and their GP that they have undergone treatment with blood components • Offer NHSBT leaflets to all patients who receive blood components	See section 5.2.
Safe sampling	• Use open ended questions to identify the patient (e.g. what is your name and date of birth?) • The sample must be labelled by hand by the person taking the blood at the patient's side immediately after the blood has been taken • Inadequately/incorrectly completed request forms/samples will be rejected • ***Never* take the initial and confirmatory sample at the same time.** This places the patient at enormous risk of receiving the wrong blood group if you have misidentified them	See section 5.4.4 – fig. 1
Collecting blood components from storage	• Take the patient's identification details with you and use them when retrieving cross-matched units • Ensure red cells are returned to the blood bank within 30 minutes if they are not used • Only collect blood if you have had a competency assessment in this activity	See fig. 2

Section	Key points	Section in policy
Safe administration	• Only transfuse blood when the patient can be observed by clinical staff • Always check the patient identification details on the blood component matches their ID band • Monitor the patient throughout the transfusion. Record the TPR and BP before the transfusion, at 15 minutes, hourly and at the end • Ensure that you confirm the fate of the blood component on the Msoft system • Avoid transfusing at night (21:00 to 08:00) unless clinically essential	See fig. 3
Acute transfusion reactions (ATR)	An acute transfusion reaction (ATR) may manifest itself in the following ways: • Fever, chills, rigors, hypotension, pain (bone, back, abdominal), myalgia, hypoxia, breathlessness or noisy breathing (stridor or wheeze), severe anxiety/sense of impending doom, signs of anaphylaxis, mouth or throat tingling or swelling (angioedema), nausea, skin rashes/itching • In the event of a suspected ATR: **Stop the blood**. Seek urgent medical support	See fig. 4.
Haemorrhage	• Do not delay in ordering blood components in the event of significant haemorrhage • Nominate one person to liaise with the laboratory • Declare 'Code Red' to the laboratory in the event of a major haemorrhagic emergency (when blood loss is rapid and likely to be > 2000mls) • Take care to ensure patient details are accurate and complete • Emergency O Rh (D) negative red cells are available in the blood bank for critically ill patients, where the blood group is unknown • They are uncross-matched and therefore carry a small risk of causing a reaction	See section 5.9 and Appx 5.
Contact the Transfusion Laboratory:	**Maidstone site** • 09:00 to 17:30 weekdays Ext: 24486 • 17:30 to 09:00 weekdays Bleep: 1366 • Weekends/bank holidays Bleep: 1366 **Tunbridge Wells Site** • 09:00 to 17:30 weekdays Ext: 35550 • 17:30 to 09:00 weekdays Bleep: 2697 • Weekends/bank holidays Bleep: 2697	N/A

5.1 Requesting a blood transfusion

Medical staff should make the decision to transfuse guided by the Clinical Indications for Transfusion of Blood Components Policy. The risk of transfusion needs to be balanced against the perceived benefit. The decision to transfuse should be recorded on the "Record of Decision to Transfuse" form found in **Appendix 10**.

Requests to the Laboratory for blood components may be made by medical staff, nurses, midwives or ODPs. Routine/non-emergency cross matches should not be requested out of hours (21:00 to 08:00). For emergency transfusions refer to section 5.9 and **Appendix 6**.

5.1.2 The following information will be required in order to complete a request for blood:

- Surname and first name, patient hospital number and date of birth
- Ward / department and hospital site
- Consultant
- Date and time sample was taken
- Type of blood component and volume/number of units required
- Time and date required
- Diagnosis and clinical comment (e.g. reason for request, relevant co-morbidities)
- Name and contact number / bleep of requester
- Special requirements

5.1.3 When known the requestor should also give details of:

- NHS number
- Transfusion history
- If the patient is pregnant

5.1.4 **Telephone requests**

If a valid group and save sample has already been sent to the laboratory, requests for red cells may be made over the telephone. If the Transfusion Laboratory has a historical record of the patient's blood group, Fresh Frozen Plasma (FFP), platelets and cryoprecipitate may be ordered without sending a blood sample from the patient.

5.2 Obtaining consent for a blood transfusion

5.2.1 This policy should be read in conjunction with the Trust's Consent to Examination or Treatment Policy and Procedure which details aspects of both legal and best clinical practice in relation to consent.

5.2.2 Verbal informed consent for blood transfusion, where possible, must be obtained from the patient. It is the responsibility of the clinician authorising the transfusion to obtain consent and document this in the healthcare record using the Record of Decision to Transfuse. If appropriate, patients (and/or their family member/carer, where appropriate) must be provided with verbal and written information. Ensure the patient has the opportunity to ask questions.

5.2.3 The explanation should include:

- The reason for the transfusion
- The benefits and risks
- The transfusion process
- Transfusion needs specific to them (e.g. irradiated blood components)
- That they have the right to refuse transfusion

- Alternatives available (and the risks there of)
- That they are no longer eligible to donate blood

NHS Blood and Transplant information leaflets are available from the Transfusion Laboratory, the Transfusion Practitioner or online (see 'Associated documents' for link)

5.2.4. For patients with chronic conditions that require frequent and ongoing treatment with blood components (e.g. MDS, leukaemia, thalassemia), one consent sticker for the treatment of transfusion is required to be completed. This should be placed in the front of the patients' healthcare record and should be reviewed each year. The review date must be clearly written in the healthcare record.

5.2.5 If a patient was unable to give valid consent prior to a transfusion (e.g. in a life medical emergency), this information (see 5.2.3) should be provided retrospectively.

5.2.6 If an adult with mental capacity makes a voluntary and appropriately informed decision to refuse a blood transfusion, this decision must be respected. Therefore, if the patient has an advanced directive that specifies refusal of blood components, this must be honoured. Please refer to the Policy for the Management of Patients who Decline Treatment with Blood Components.

5.3 Documenting and authorising blood transfusion

Before blood products are administered, the reason for transfusion should be written in the patient's medical healthcare record by the authorising clinician.

5.3.1 The entry in the healthcare record should state:

- Date
- Clinical indication for transfusion and relevant pre transfusion indices (e.g. full blood count)
- Type and number / volume of blood components to be transfused
- Details of the information provided to the patient (risks, benefits and alternatives to transfusion)
- That patient has consented to be transfused

5.3.2 **Authorisation**

The authorising clinician should authorise the blood transfusion in the 'Intravenous Infusion Therapy' section of the Prescription Chart and Medicines Administration Record.

5.3.3 The authorisation of blood components should specify:

- Patient's core identifiers (full name, hospital number, date of birth)
- Date transfusion to be given
- Blood component(s) to be transfused
- Volume (mls)/number of units to be transfused (blood components for children should always be referred to in mls)
- Rate of transfusion (See table 1)
- Special requirements/instructions (e.g. irradiated, CMV seronegative, blood warmer).

Table 1: Transfusion rates for different blood components:

Component type	Routinely transfused over:
Red cells	2 to 3.5 hours
Platelets	30 minutes
FFP	30 minutes
Cryoprecipitate	30 to 60 minutes (total dose)
Granulocytes	1 to 2 hours (total dose)

5.3.4 Blood will remain available for 48 hours after the requested time for use. Unused units will then be returned to stock unless a request has been made to keep them longer. If a surgical admission for which blood components have been ordered is cancelled, the staff caring for the patient should inform the laboratory of the new date of operation/procedure.

5.4 Sampling blood for blood transfusion analysis

All samples will be tested in accordance with the Laboratory Standard Operating Procedures, which can be found in both Blood Transfusion Laboratories and on the Pathology Q-Pulse database**.** Blood samples for all blood transfusion procedures (blood group, antibody screen, cross match, Kleihauer) must be collected into a 6ml pink top vacuette tube (K3E Crossmatch K3EDTA). For children, a minimum of 2mls of blood is required for testing blood group analysis. For infants >4 months use a purple top paediatric bottle.

Table 2: Timing of samples for pre-transfusion testing:

Patient type	Time limits for pre-transfusion testing	
	Samples refrigerated in laboratory	Frozen samples
Patient transfused or pregnant in last 3 months	Up to 3 days *	N/A
Patient not transfused and not pregnant in last 3 months	Up to 7 days	8 weeks **
* This is the time between the sample being taken and the subsequent transfusion		
** Pre-operative samples are frozen. Ensure request form informs the laboratory of this requirement.		

5.4.1 The collection of the blood sample and the sample labelling must be performed as one continuous, uninterrupted event, involving one patient and one trained and competent healthcare worker only. Sample tubes must not be pre-labelled.

5.4.2 Positive patient identification at the time of sample collection is crucial. Outpatients are identified verbally by asking their surname, first name and date of birth. Inpatients are identified verbally, in the same manner (where conscious) and also by their patient identity band.

5.4.3 The sample must be labelled by hand by the person taking the blood at the patient's side immediately after the blood has been taken. Use the data from the identity band to label samples taken from inpatients. Addressograph labels are not acceptable. Inadequately completed forms or samples will not be processed by the transfusion laboratory.

5.4.4 Confirmatory sample system

The Trust operates a confirmatory sample system for blood grouping prior to administration of blood components. The majority of patients will not require a confirmatory sample, as a historical blood group would be recorded in the Transfusion Laboratory. A cord sample from new born babies will be accepted as a blood group sample.

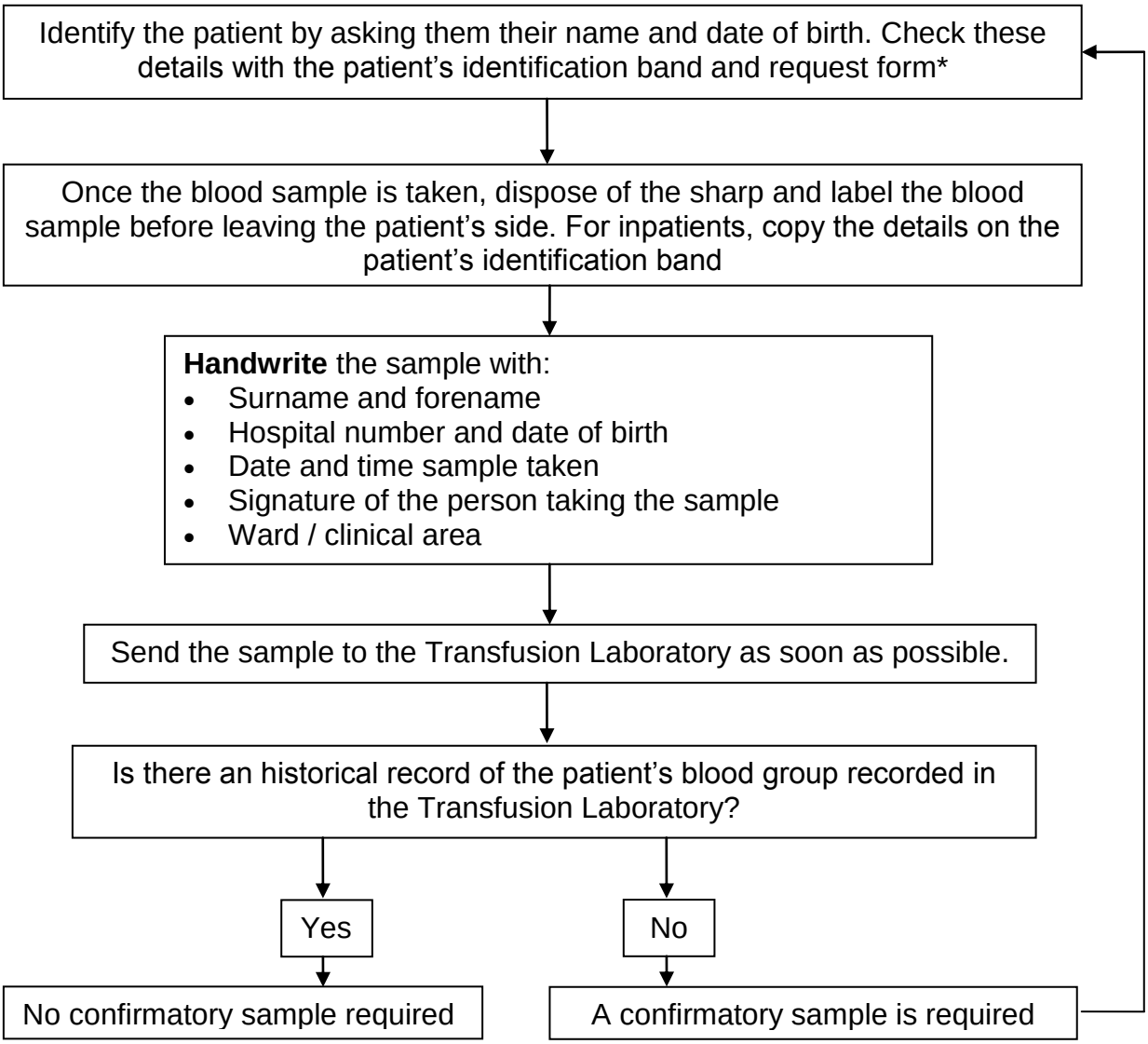
5.4.4.1 When ordering a crossmatch, staff should check for historical blood group results on the Trust Results/Reports Viewer, if no result is found then the Transfusion Laboratory may be contacted to enquire whether a confirmatory sample is required. A separate transfusion request form (usually accessed via PAS) is required for each sample sent to the laboratory.

5.4.4.2 If a further sample is required, it must be a separate venepuncture episode, ideally taken by a different member of staff. Each time blood is sampled the colleague must correctly identify the patient and complete the sampling process. See figure 1 for a summary of the procedure.

5.4.4.3 The confirmatory sample system is required for all patients receiving cross matched blood, including urgent cases. Emergency O Rh (D) blood is immediately available for life threatening emergencies and can be used until the confirmatory sample has been processed by the Transfusion Laboratory.

Figure 1

Process for taking blood samples for transfusion analysis



*If there is any mismatch between the details on the request form and the patient's identification, seek help from the clinician in charge of the patient make any necessary corrections before proceeding.

Caution!

- ***Never*** **take the initial and confirmatory sample at the same time. This places the patient at enormous risk of receiving the wrong blood group if you have misidentified them.**
- Misidentification is the commonest error in the transfusion process. Take care to positively identify the patient and check their details are correct.
- For patient safety, the Transfusion Laboratory exercises a 'zero tolerance' policy with regard sample labelling errors. Therefore inadequately/incorrectly completed request forms or samples will not be processed.

5.5 Collecting blood components from storage

Only staff that have had a competency assessment in blood collection and have been issued with a login may collect blood components from the transfusion department. Blood collection competency assessment documentation may be requested by contacting the TP Team.

5.5.1 Collecting red cells

Red cell units are stored in specific blood bank refrigerators, never in a ward or domestic refrigerator. Blood banks are situated:

- MH: Main blood bank: Orange Zone outside the Transfusion Laboratory, level 1
- TWH: Main blood bank: Pathology department, level -2, Purple zone
  Satellite blood bank: Obstetric theatres recovery, Delivery Suite, level 2, Green zone.

5.5.2 Staff collecting blood components must bring the patient's identity details (surname, forename, hospital number and date of birth) on a blood collection slip. Each unit must be scanned out of the blood bank using the Msoft/Bloodhound system. The blood collection slip should be printed off in the clinical area. If there are IT problems and an Msoft/Bloodhound collection slip is not available, then a contingency blood collection slip should be printed off and the patient details completed by hand. The contingency blood collection slip is found in **Appendix 7**.

5.5.3 In exceptional circumstances, for example a Code Red emergency, the blood collector may be asked to collect patient specific units before they are issued on the Msoft/Bloodhound and thus a collection slip will not be available for print. In this situation it is acceptable to bring an alternative to the blood collection slip which contains the patient's full name, hospital number and date of birth. The blood collector must be informed of the number of units and the components they are to collect.

5.5.4 Red cells transfusions must be started within 30 minutes of being removed from the blood bank or returned to storage. If the blood component is not started within this time window, contact the laboratory and seek advice. If blood is being transferred to another hospital the laboratory must be informed and the blood placed in a suitable transport box with a blood transfer form provided by the laboratory staff.

5.5.5 Single units of red cells should be transported using the white plastic blood transport bags. These are reusable, as long as they remain in a clean condition. If more than one unit of red cells are being taken or if there may be some delay in transfusing, then the blood should be placed in a transport box containing cool packs. Red cells being collected for high risk areas without a satellite blood bank may routinely use transport boxes to store units on the day of transfusion (e.g. Theatres on both sites). Blood may be stored in transport boxes for up to 4 hours.

5.5.6 Collecting platelets and cryoprecipitate (cryo)

The same process is required for the collection of platelets and cryoprecipitate. The exception is that platelets and cryoprecipitate must be stored at room temperature and never put into refrigeration. For the purposes of collection, both platelets and cryo will be stored in the agitator located in the blood transfusion department. Cryoprecipitate is stored at below -30^{o}C in the laboratory and thawed to order. Platelets must be administered within one hour of being removed from the agitator in the laboratory (if this is not possible, the component should be returned to the laboratory and the laboratory staff informed).

5.5.7 Collecting Fresh Frozen Plasma (FFP)

Fresh frozen plasma (FFP) is stored below -30^{o}C in the laboratory and thawed to order. Adult FFP once thawed can be stored for 24 hours at 4^{o}C. It should be administered within 4 hours of being removed from the blood bank. Methylene Blue FFP (which is used for all patients born since 1998) once thawed can be stored for 4 hours only. FFP will be in the main blood bank and two units may be collected at one time.

If the FFP has not been administered within this time span, then the component should be returned to the laboratory and the lab staff informed.

5.5.8 Collecting granulocytes

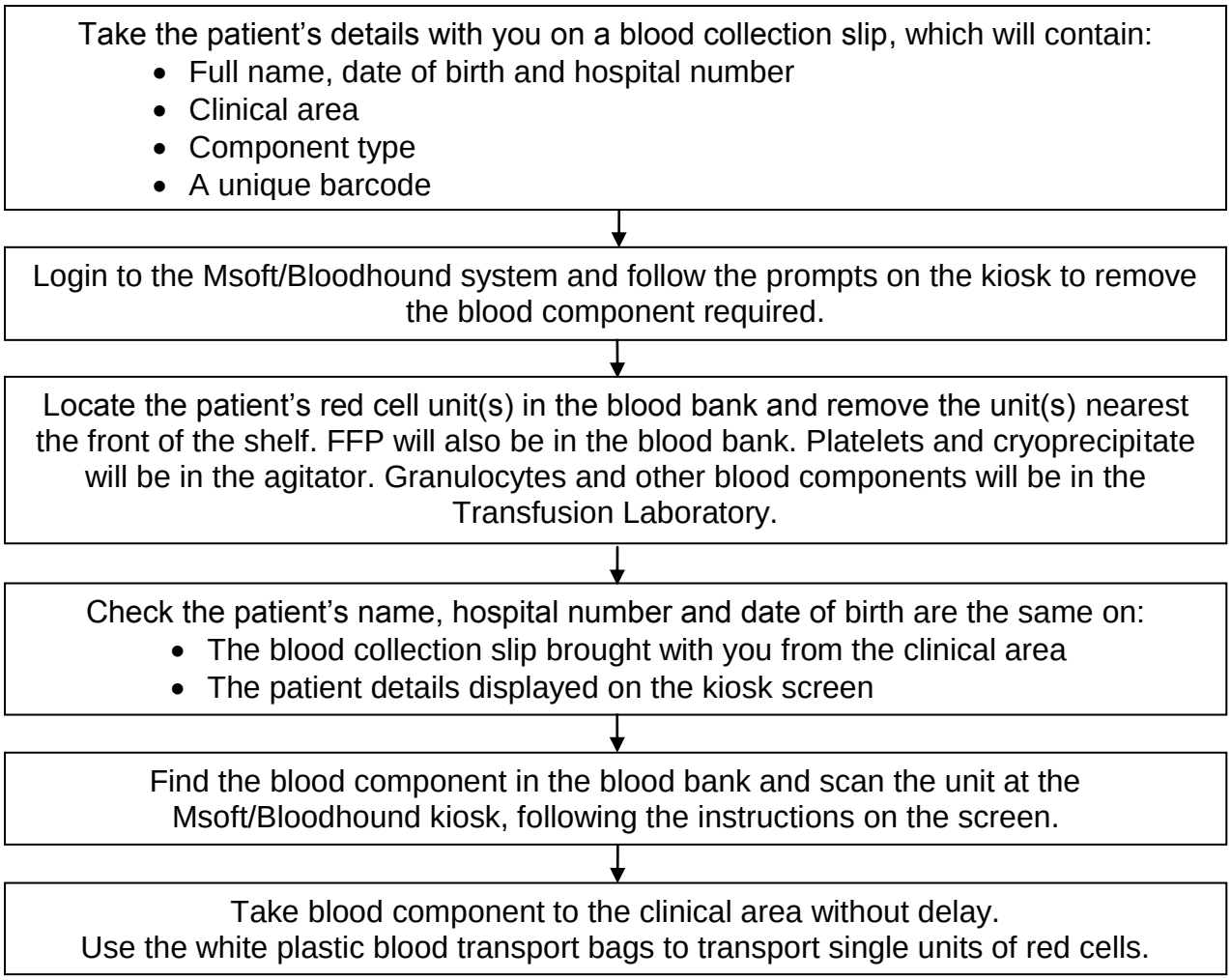
Granulocytes are stored at 22°C without agitation and will be found in the blood Transfusion Laboratory.

5.5.9 Returning blood components to the Pathology Department

Return the blood component back to the storage that they were collected from. Red cells must be returned to the blood bank within 30 minutes of removal if they are not used. Ensure all returned blood components are scanned back into the blood bank using the Msoft/Bloodhound system. If red cells unit(s) have been out of temperature control for more than 30 minutes the Msoft/Bloodhound system will alert you as you scan the unit. Do not put them back in the blood bank, instead, give them to a member of the blood transfusion staff.

Figure 2

Process for collecting blood from storage



Please note:

- If the Msoft/Bloodhound kiosk alarms or you see a warning on the screen, do not take the blood component to the clinical area and seek immediate assistance from one of the laboratory staff.
- If you experience difficulties when using the Msoft/Bloodhound system, seek assistance from the laboratory staff. It is important that the patient's care is not significantly delayed.
- In exceptional circumstances, for example a haemorrhagic emergency, a blood collector may be given the patient's identifying details in an alternative form other than the blood collection slip (e.g. a patient demographic sticker). The following process must be followed in this situation:

1. Login to the Msoft/Bloodhound system.
2. When asked to scan the barcode for patient, select '*cancel barcode scanner'* and use the keyboard on the screen to enter the patient identification details.
3. Follow the prompts on the kiosk to remove the blood component required.
4. Manually check the patient's details on the unit against the patient identification details
5. Scan the unit at the Msoft/Bloodhound kiosk, following the instructions on the screen.

5.6 Administering blood components

5.6.1 Checking blood prior to transfusion

One registered competent healthcare professional is responsible for checking the identity of the patient and the unit of blood at the patient's bedside. This may be a doctor, Registered Nurse, Registered Midwife or ODP. This person must start the transfusion. The checking procedure must not be interrupted.

5.6.2 Preparation

- Ensure the patient (or the responsible person) has consented to the transfusion. Check the health care record to ensure that a Record of Decision to Transfuse has been completed for this admission. If it has not, do not proceed (unless the transfusion is urgent, e.g. a life threatening emergency) until the medical staff have completed this document.
- Offer the patient an information leaflet if they have not yet received this. Explain the procedure to patient. Tell the patient it is important to report if they feel unwell at any time during a transfusion.
- Ensure the patient has patent intravenous access.
- Ensure the patient is prepared and that the blood has been authorised before you collect the blood component from the laboratory.
- Do not take the pack from the blood bank until you are ready to check and transfuse. If the infusion is not started within 30 minutes the pack must be returned to the laboratory and the laboratory staff informed.
- Record the patient's TPR and BP before starting the transfusion (not more than one hour prior to commencement).

5.6.3 Inspect the unit

- Check that the pack shows no signs of leakage, unusual colour or of haemolysis.
- Check that platelet packs do not show clumping or appear unusually cloudy, as this may be a sign of bacterial contamination.

5.6.4 Check the patient's identity

At the patient's side, ask the patient to confirm their full name and date of birth (if possible). Check that the name and date of birth on the blood component unit match what the patient says.

For patients who are unable to identify themselves, e.g. paediatric, unconscious or confused patients, or where there is a language barrier, use the patient's identity band. Additional verification of the patient's identification may be obtained from a parent or carer (if present).

- Check the patient's name, date of birth and hospital number on the unit of blood match the drug administration chart.
- Check the blood group and unit number on the front of the unit match the information on the tag.
- Check the expiry date on the unit has not been exceeded.

5.6.5 The final check:

- Check the name, date of birth, and hospital number on the unit blood pack against the details on the patient's identification band.

All patients having a blood transfusion must be wearing an identity band

No identity band = No transfusion

5.6.6 Sign the Prescription Chart and Medicines Administration Record, recording the time, date and unit number of the blood.

5.6.7 If any discrepancies are found at any point during the checking process the unit must not be transfused. Inform the blood bank and return the unit to the laboratory.

5.7 Caring for a patient during a blood component transfusion

Transfusions should only be given where (and when) the patient can be observed by clinical staff. From removing the unit from the blood bank to completion of the transfusion should take a maximum of 4 hours. Red cells are normally administered over 2 to 3.5 hours.

5.7.1 During the transfusion

- Observe the patient visually throughout the transfusion. Check for signs/symptoms of a reaction. Check the IV cannula site for signs of infiltration. Check the rate of the transfusion.
- Record the patient's TPR and BP 15 minutes after commencing and hourly throughout the transfusion. More frequent observations may be required e.g. rapid transfusion, or patients who are unable to complain of symptoms that would raise suspicion of a developing transfusion reaction.
- Login to the Msoft/Bloodhound system and confirm the fate of the unit as transfused.

5.7.2 At the end of each unit transfused

- Dispose of the empty blood bag as clinical waste
- Record the patient's TPR and BP at the end of the transfusion (within one hour of completion)
- Document the time the unit was completed on the Prescription Chart and Medicines Administration Record

5.7.3 Discharging a patient who has had a transfusion

- Ensure that the EDN/discharge letter informs the GP:
  - Of the reasons for the transfusion
  - Of any adverse events
  - That they are no longer eligible to donate blood
- Offer the NHSBT information leaflet with their discharge information, if they have not previously received this this (see Associated Document Section)
- Inform the patient to seek medical advice if they become unwell in the next 7 to 9 days post transfusion as this may indicate a form of a delayed transfusion reaction.

5.7.4 Night time transfusions

Transfusion of blood components should not take place at night unless clinically essential. Routine transfusions should be started between 08:00 and finished before 21:00, unless otherwise directed by medical staff. If staff are unsure about transfusing over night, they should seek advice from the night nurse practitioner or medical staff. If a patient receives blood components out of hours, the clinical reason must be documented in the healthcare record.

5.7.5 Blood administration sets

Blood components must be transfused through a blood administration set with an integral mesh filter (170 to 200 µm pore size).

For red cells, the administration set should be changed after 12 hours or after 3 units have been administered and/or when another infusion is to continue after the transfusion. If there is a time lag of more than 20 minutes between one unit finishing and the next starting, a new administration set must be primed for the next unit.

5.7.6 Do not administer platelets through an administration set already used for red cells, prime a new set. A new administration set should be used if another fluid is to be infused following the blood component. Use special paediatric blood administration sets for infants and small children. Use a screen filter if transfusion is given by syringe.

5.7.7 Infusion devices and blood warming equipment

Electronic infusion pumps may be used for blood components provided they are certified by the manufacturer as suitable and the appropriate blood giving set is used. It is the responsibility of the registered practitioner to ensure that they are trained and competent to use the infusion device.

Blood should only be warmed using a blood transfusion warmer. For location of blood warmers contact the site nurse practitioners.

A blood warmer is indicated for:

- Flow rates of >50ml/kg/h in adults
- Flow rates of >15ml/kg/h in children
- Exchange transfusions in infants
- Patients with clinically significant cold agglutinins

5.7.8 Administration of other blood components

The same safety identity checks are required for platelets, fresh frozen plasma, cryoprecipitate and granulocytes

Platelets

- Platelets should be administered through a sterile blood giving set or platelet administration set
- Platelets should not be transfused through an administration set previously used to transfuse red cells
- Never put platelets in the refrigerator
- Start infusion as soon as the pack is received from the blood bank. If a pool of platelets is off the agitator for over one hour, the blood laboratory must be informed and the platelets returned
- Infuse over not more than 30 minutes (or as instructed by medical staff)

FFP/Cryoprecipitate

- Once thawed, infusion should be completed within 4 hours
- Start the infusion as soon as the pack of thawed product is received from the blood bank
- FFP & cryoprecipitate should be given ‘stat’ or over 30 minutes to 1 hour
- Anaphylactic reaction may be more of a risk with a rapid infusion
- If it is likely that the 4 hour window, at room temperature, may be exceeded, return the plasma to the laboratory and inform the staff
- FFP may be stored at 4˚C for 24 hours or at 4 hours at ambient temperature before it expires
- Cryoprecipitate should never be refrigerated once thawed out

Granulocytes

- Granulocytes are supplied as 2 pools per adult dose or 10 to 20 ml/kg for children
- 5 to 7 daily transfusions per week are usually supplied, subject to clinical response
- Granulocytes carry a 24 hour shelf life from production therefore prompt transfusion is necessary to avoid expiry
- For granulocytes the whole dose is transfused over 1 to 2 hours
- Granulocytes will be irradiated to prevent graft versus host disease (TA-GvHD)

Figure 3: Care of a patient receiving a blood component transfusion

Before the transfusion:
Ensure that the patient has a record of consent for transfusion for this admission in their healthcare record. Explain procedure to patient including possible adverse effects. Obtain verbal consent for the transfusion, if possible. Measure the patient's vital signs (TPR and BP) not more than one hour before starting the transfusion. When the blood component arrives in the clinical area confirm this by 'receipting' it on the Msoft/Bloodhound system

↓

At the patient's side:
- ✓ If possible, ask the patient to confirm their name and date of birth.
- ✓ Check the patient's name, date of birth and hospital number on the unit match the drug chart.
- ✓ Check the blood group and unit number on the front of the unit match the tag.
- ✓ Check the expiry date on the unit has not been exceeded.
- ✓ Check the unit for any abnormal colour, clumping or leakage.

(Check to be performed by qualified staff (doctor, nurse, midwife, ODP))

↓

The final check:
Match the name, date of birth, and hospital number on the unit blood pack against the patient's identity band

↓

- Wash and dry hands.
- Prime the blood giving set with the unit and connect transfusion to patient
- Adjust drip rate to infusion time on prescription chart.

↓

- Sign the prescription chart stating the time, date and unit number
- Confirm the fate the unit as transfused on the Msoft/Bloodhound system (this may be done at any time during the transfusion)

↓

During the transfusion:
- Visually observe the patient throughout the transfusion. Also check the IV site and administration rate.
- Record TPR and BP 15 minutes after commencing the transfusion and hourly throughout
- More frequent clinical observations may be required if the transfusion is rapid, or patients who are unable to complain of symptoms that would raise suspicion of a developing transfusion reaction (e.g. a child or a patient lacking mental capacity)
- If the patient shows signs or symptoms of a possible transfusion reaction, stop the transfusion. TPR and BP should be monitored and recorded and appropriate action taken

↓

At the end of the transfusion:
- Record the patient's TPR and BP (not more than one hour post completion of unit)
- Dispose of the empty bag in a clinical waste bin
- Document the completion time of the transfusion on the prescription chart

Caution!
- Misidentification is the most common cause of error in the blood transfusion process
- The final identity check must be done next to the patient matching the blood pack against the patient's identification band

5.7.9 Record keeping and traceability

Blood must be traceable by European law (EU Directive 2002/98). The unit number of the blood enables unique identification of each blood product collected by the NHSBT and this must be linked to the patient receiving the blood in the hospital.

The fate of blood components must be confirmed on the Msoft/Bloodhound system. Each clinical area should 'fate' units within 24 hours of the transfusion so that the laboratory can confirm that the unit has been given.

New staff who have had training on how to use the Msoft/Bloodhound system will be given access to the system on receipt of the completed and signed off 'Msoft/Bloodhound training checklist for staff who administer blood components' in the Transfusion Laboratory. Please see **Appendix 9**.

The fate of uncross-matched Emergency O Rh(D) negative units cannot be confirmed on the Msoft/Bloodhound system. Therefore staff must complete the tag attached to the unit and return this to the blood Transfusion Laboratory. The following information is required on the tag:

- Patient's name, date of birth and hospital number
- Location of the patient
- Date and time unit of blood was started
- Signature of the staff member administering the blood

The Msoft/Bloodhound system will be used to confirm a transfusion has been given and is entered on the transfusion department's IT system. This information must be stored for 30 years. If the unit is not fated as transfused, the ward manager will be asked to confirm the fate of the blood component.

After the transfusion is completed all records must be kept in the patient's permanent healthcare record for 30 years:

- Blood transfusion nursing health care record and if used, the clinical observation chart
- Prescription chart
- Documentation related to the administration of blood other than those above must be retained for three months
- Request form (in the laboratory)

Hospital Blood Bank must keep records such as worksheets, blood bank registers, refrigerator and freezer charts for at least 11 years. Traceability tags may be discarded once the transfusion episode has been confirmed on the Msoft/Bloodhound computer system.

5.8 Managing and reporting adverse reactions and events

All patients who have a blood component transfusion are at risk of a transfusion reaction. Ask the patient to report any new symptoms or signs during or after the transfusion. Please see figure 4 for a summary of management. TACO is an avoidable adverse reaction associated with transfusion. Ensure that the patient is assessed for risk of TACO, refer to **Appendix 11.**

5.8.1 Signs and symptoms of ATR may include:

- Fever, chills, rigors
- Hypertension or hypotension
- Tachycardia
- Pain (bone, back, abdominal)
- Myalgia
- Hypoxia
- Breathlessness or noisy breathing (stridor or wheeze)
- Severe anxiety or sense of impending doom
- Signs of anaphylaxis
- Mouth or throat tingling or swelling (angioedema)
- Nausea
- Skin rashes (urticaria)
- Itching (pruritus)
- General malaise

5.8.2 Management

- If you suspect a severe reaction **stop the transfusion** immediately.
- Check ABC
- Administer oxygen
- Get medical help (contact the Resus team on x2222, if the reaction appears life threatening)
- Maintain venous access with 0.9% saline and record the vital signs.
- Inform the laboratory and return the units
- Take post-transfusion group and save sample and return to laboratory.

5.8.3 Treatment

Suspect	If symptoms of	Treat
Anaphylaxis	• Wheeze • Swelling • Pain • Hypotension • Collapse	Anaphylaxis pathway Give adrenaline IM Consider: • Chlopheniramine • Hydrocortisone • Salbutamol
ABO incompatibility or sepsis (infection)	• Fever • Rigors • Tachycardia • Hypotension • Anxiety • Pain • Breathlessness	• IV saline • Sepsis pathway (if sepsis) • IV broad spectrum antibiotics (if sepsis)
Circulatory overload (TACO) or	Any 4 of the following occurring within 6 hours of transfusion: • Acute respiratory distress • Tachycardia • Increased blood pressure • Acute or worsening pulmonary oedema • Evidence of positive fluid balance.	Furosemide (if TACO)
Lung injury (TRALI)	• Acute dyspnoea with hypoxia and bilateral pulmonary infiltrates during or within six hours of transfusion, not due to circulatory overload or other likely cause.	Treat as ARDS

Investigate
• FBC, renal profile, liver profile, coagulation screen • Repeat blood group screen and save According to the reaction, also consider: • First urine sample (haemoglobin) • IgA level (EDTA) • Serial mast cell tryptase at times: 0 hours, 3 hours and 24 hours (plain tube) • Blood cultures (if sepsis suspected) • CXR - if breathlessness present

5.8.4 Other complications of transfusion

Post transfusion purpura is rare but potentially lethal and may occur 5 to 9 days post transfusion of red cells or platelets. The patient develops an extremely low platelet count without bleeding. In such circumstances, staff should seek advice from the Consultant Haematologist on call.

Delayed transfusion reaction occurs 24 hours to 7 days post transfusion. Patient develops red cell antibodies causing the transfused red cells to be destroyed abnormally quickly. The signs of a delayed possible transfusion reaction are: Hb falls more rapidly than expected post transfusion, the patient becomes jaundiced with increased bilirubin, the patient has a positive direct anti-globulin test. In such circumstances, discuss with Transfusion Laboratory and Consultant Haematologist on call.

5.8.5 Reporting adverse reactions and adverse events

Adverse reactions and adverse events, including 'near misses', must be reported via the Trust e-reporting system: ‘Datix’.

5.8.6 The Trust HTT & HTC will review all transfusion related events that have been reported. Adverse reactions/events will be reported to the MHRA and SHOT via the SABRE reporting website. These reports will be made by a member of the Transfusion Team. Suspected cases of transfusion transmitted infections will be reported immediately to NHSBT by a member of the HTT.

5.8.7 In the event of a failure in the Pathology Department IT System the blood Transfusion Laboratory will continue to cross match blood, please contact the Transfusion Laboratory for more information.

TACO Checklist	Red cell transfusion for non-bleeding patients	If 'yes' to any of these questions
	Does the patient have a diagnosis of 'heart failure' congestive cardiac failure (CCF), severe aortic stenosis, or moderate to severe left ventricular dysfunction? Is the patient on a regular diuretic?	1 • Review the need for transfusion (do the benefits outweigh the risks)?
	Is the patient known to have pulmonary oedema? Does the patient have respiratory symptoms of undiagnosed cause?	2 • Can the transfusion be safely deferred until the issue can be investigated, treated or resolved?
	Is the fluid balance clinically significantly positive? Is the patient on concomitant fluids (or has been in the past 24 hours)? Is there any peripheral oedema? Does the patient have hypoalbuminaemia? Does the patient have significant renal impairment?	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

Due to the differences in adult and neonatal physiology, babies may have a different risk for TACO. Calculate the dose by weight and observe the notes above.

Figure 4: Flow diagram for recognition and management of an acute transfusion reaction

Maidstone and Tunbridge Wells NHS Trust

Patient exhibiting possible features of an acute transfusion reaction, which may include:
Fever, chills, rigor, tachycardia, hyper/hypotension, collapse, flushing, urticaria, pain (bone, muscle, chest, abdominal), respiratory distress, nausea, general malaise

STOP THE TRANSFUSION
Assess: Undertake rapid clinical assessment, **Check**: patient ID/blood compatibility label, **Inspect:** (look for clots, discolouration, cloudiness)

Evidence of: **Life-threatening Airway/Breathing/Circulatory problems** And/or **wrong blood given** and/or **evidence of contaminated unit?**

Yes

Severe/Life threatening
- Call for urgent medical help. Dial 2222
- Initiate resuscitation: ABC
- Maintain venous access
- Monitor patient: e.g. TPR, BP, urinary output, O_2 saturations
- Fluid resuscitate (0.9% saline) as guided by BP, pulse, urine output (catheterise if necessary)

- If likely anaphylaxis/severe allergy: follow anaphylaxis pathway
- If bacterial contamination likely follow sepsis pathway
- If haemorrhage likely to be cause of hypotension, fluid resuscitate/continue transfusion
- Inform Transfusion Laboratory
- Return unit (with administration set) to Transfusion Laboratory
- Perform appropriate investigations

No

Inform medical staff

Moderate
- Temperature >39ºC or rise >2ºC and/or
- Other symptoms/signs apart from pruritus/rash only

- Review patient's underlying condition & transfusion history
- Monitor patient more frequently e.g. TPR, BP, urinary output, oxygen saturations

Not consistent with condition or history
- Discontinue transfusion
- Return implicated units to Transfusion Laboratory
- Perform appropriate investigations

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

Mild
- Isolated temp 38-39ºC and rise of 1-2ºC only or Pruritus/rash only

- Consider symptomatic treatment
- Continue transfusion
- Monitor patient more frequently

Document in healthcare records
Report only if recurrent

If symptoms/signs worsen, stop transfusion and manage as moderate/severe reaction

Report to laboratory for review at HTC and report to SHOT/MHRA as appropriate

If transfusion related event

5.9 Emergency transfusions

Contact the laboratory immediately when dealing with a 'Code red'/Major Haemorrhage situation. See **Appendix 5** (Management of major haemorrhage in adults, including guidance on care of specific patient groups) and **Appendix 6** for the 'Code Red/Major Haemorrhage protocol' audit proforma.

NEED:	CATEGORY	
Immediate	**1. O RhD Negative emergency red cells**	**Group O RhD negative, K negative** This is for use in extreme emergency. The laboratory staff must be informed if this blood is needed. Located in blood bank in the pathology department. O Rh (D) positive red cells may be issued for male patients or female patients aged over 60 years
15 minutes	**2. Group specific**	**ABO & RhD matched** (no antibody screen)
45 minutes	**3. Fully cross-matched**	**Group ABO, RhD matched with antibody screen**

5.9.1 Inform the hospital blood bank *how quickly* the blood is needed for each patient and which category of blood is required (see above). Make sure that both the hospital blood bank and the support staff know:

- *Who* is going to get the blood to the patient
- *Where* the patient will be when the blood is ready.

5.9.2 The minimum identification for a patient is the hospital number, gender, name, date of birth or estimated age. If the patient's identification details become known after a blood sample has been sent to the laboratory, either keep the A&E identification for the duration of the treatment episode (i.e. until the patient stabilises) or change the patient's identification band and send a new sample for group analysis.

5.9.3 O Rh (D) Negative emergency blood

Up to four units of O Rh (D) negative blood for adult use are stored both in the main blood banks in each Pathology Department. Two units of O Rh (D) negative red cells are also in the satellite blood bank in the Obstetric Department. One unit of O Rh (D) negative red cells for neonates or children is also stored in the both the main blood bank at TWH and the satellite blood bank in obstetrics at TWH. It is the responsibility the clinical staff to inform the Transfusion Laboratory if O Rh (D) negative emergency blood has been used and confirm the fate of the unit(s). It is the responsibility of the transfusion staff to maintain emergency blood stocks in the main blood bank.

5.9.4 Transferring a patient with blood

In exceptional circumstances, a patient may be transferred to another hospital with blood components taken to cover possible emergencies on route. Two units of red cells may be taken for this purpose. A member of nursing or medical staff must accompany the patient. The blood should be packed into a transport box by one of the BMS staff in the laboratory. The blood may remain in the transport box for 4 hours. It is the responsibility of the clinician accompanying the patient to return any unused units to the Transfusion Laboratory. It is also the clinician's responsibility to confirm the fate of the blood component on Msoft/Bloodhound if transfused in transit.

APPENDIX 1

Process requirements

1.0 Implementation and awareness

- Once ratified, the Chair of the Policy Ratification Committee (PRC) will email this policy/procedural document to the Corporate Governance Assistant (CGA) who will upload it to the Trust policy database on the intranet, under “Policies & guidelines”.
- A monthly publications table is produced by the CGA which is published on the Trust intranet under “Policies & guidelines”. Notification of the posting is included on the intranet “News Feed” and in the Chief Executive’s newsletter.
- On reading of the news feed notification all managers should ensure that their staff members are aware of the new publications.

2.0 Monitoring compliance with this document

The Hospital Transfusion Committee will be responsible for monitoring the compliance with this policy / procedure on behalf of the Trust. Compliance with the following minimum requirements will be monitored by this committee thus:

- Process for the request of blood samples for pre-transfusion compatibility testing: These are continually monitored by the laboratory. Any requests or samples that fail to meet required standards are logged on the laboratory IT system and not tested. The clinical area is informed that the sample or request is unsuitable.
- Process for the administration of blood and care of patients receiving a transfusion will be considered for inclusion as part of the clinical audit schedule.
- The Trust’s expectations in relation to staff training, as identified in the training needs analysis. All training records and competency assessment records are held centrally by education and training. Education and Training are approached on an annual basis to supply figures for the MHRA compliance report.

3.0 Review

This policy and procedure and all its appendices will be reviewed at a minimum of once every 4 years.

4.0 Archiving

The Trust approved document management database on the intranet, under ‘“Policies & guidelines”, retains all superseded files in an archive directory in order to maintain document history.

APPENDIX 2

CONSULTATION ON: Blood Transfusion Policy and Procedure

Consultation process – Use this form to ensure your consultation has been adequate for the purpose.

Please return comments to: Transfusion Practitioner

By date: 14th February 2019

Job title:	**Date sent dd/mm/yy**	**Date reply received**	**Modification suggested? Y/N**	**Modification made? Y/N**
The following staff must be included in all consultations:				
Corporate Governance Assistant	14/02/19	06/03/19 04/04/19	Y Y	Y Y
Counter Fraud Specialist Manager (tiaa)	14/02/19			
Energy and Sustainability Manager	14/02/19			
Chief Pharmacist and Formulary Pharmacist	14/02/19			
Formulary Pharmacist	NA			
Staff-Side Chair	NA			
Complaints & PALS Manager	NA			
Emergency Planning Team	14/02/19			
Head of Staff Engagement and Equality	14/02/19			
Head of Clinical Information Systems and Healthcare Records Services	14/02/19			
Health Records Manager	06/03/19			
All individuals listed on the front page	14/02/19			
The relevant lead for the local Q-Pulse database: Pathology	14/02/19			
All members of the approving committee: Hospital Transfusion Committee (HTC)	14/02/19	19/03/19	Y	Y
Other individuals the author believes should be consulted				
CNS for IV Access	14/02/19			
Phlebotomy Manager	14/02/19			
The following staff have given consent for their names to be included in this policy and its appendices:				

APPENDIX 3

Equality impact assessment

This policy includes everyone protected by the Equality Act 2010. People who share protected characteristics will not receive less favourable treatment on the grounds of their age, disability, gender, gender identity, marital or civil partnership status, maternity or pregnancy status, race, religion or sexual orientation. The completion of the following table is therefore mandatory and should be undertaken as part of the policy development, approval and ratification process.

Title of document	Blood Transfusion Policy and Procedure
What are the aims of the policy?	To ensure safe blood transfusion processes and practices
Is there any evidence that some groups are affected differently and what is/are the evidence sources?	No
Analyse and assess the likely impact on equality or potential discrimination with each of the following groups.	**Is there an adverse impact or potential discrimination? Yes** **If yes give details.**
Gender identity	No
People of different ages	No
People of different ethnic groups	No
People of different religions and beliefs	Yes The Jehovah Witness community does not accept treatment with blood components. Care must be taken to ensure that individuals' wishes are understood and respected.
People who do not speak English as a first language (but excluding Trust staff)	No
People who have a physical or mental disability or care for people with disabilities	No
People who are pregnant or on maternity leave	No
Sexual orientation (LGB)	No
Marriage and civil partnership	No
Gender reassignment	No
If you identified potential discrimination is it minimal and justifiable and therefore does not require a stage 2 assessment?	No
When will you monitor and review your EqIA?	Alongside this document when it is reviewed.
Where do you plan to publish the results of your Equality Impact Assessment?	As Appendix 3 of this document

FURTHER APPENDICES

The following appendices are published as related links to the main policy/procedure on the Trust approved document management database on the intranet, under 'Policies & guidelines':

No.	Title	Unique ID	Title and unique id of policy that the appendix is primarily linked to
4-1	Receiving and administering a blood component: assessment and declaration of competence	RWF-OWP-APP17	This policy
4-2	Taking a blood sample for blood group analysis: assessment and declaration of competence	RWF-OWP-APP19	This policy
4-3	Blood Transfusion Training Opt Out / Blood Transfusion Competency Assessment Opt Out	RWF-OWP-APP20	This policy
5	Code Red: Management of major haemorrhage, including guidance on care of specific patient groups	RWF-PTH-BT-GUI-1	This policy
6	Major haemorrhage protocol (Code Red) audit proforma	RWF-OPF-CSSS-C-PATH3	This policy
7	Contingency blood collection slip	RWF-OPF-CSSS-C-PATH12	This policy
8	Surgical Blood Ordering Schedule (SBOS)	RWF-PTH-BT-APP-1	This policy
9	Msoft/Bloodhound training checklist for staff who administer blood components	RWF-PTH-BT-FOR-3	This policy
10	Record of decision to transfuse	RWF-PTH-BT-FOR-4	This policy
11	TACO checklist	RWF-PTH-BT-GUI-3	This policy