Blood Transfusion Policy

Approval date:	**23 January 2024**
Version number:	**1.0**
Author:	**Dawn Smith and SNBTS Transfusion Team**
Review date:	**23 January 2027**
Security classification:	**OFFICIAL – Green: unclassified information**

If you would like this document in an alternative language or format, please contact Corporate Services on 01595 743069.

Document reference number: NAPOL015

NHS Shetland Document Development Coversheet*

Name of document	Blood Transfusion Policy		
Document reference number	NAPOL015	**New or Review?**	New
Author	Dawn Smith and SNBTS Transfusion Team		
Information Asset Owner	Kathleen Carolan, Director of Nursing and Acute Services		
Executive lead	Kathleen Carolan, Director of Nursing and Acute Services		
Review date	23 January 2027		
Security classification	OFFICIAL – Green: unclassified information		

Proposed groups to present document to:		
Hospital Transfusion Committee (HTC)	Surgical Audit Committee	
Hospital Transfusion team (HTT)	Consultants Group	

Date	Version	Group	Reason	Outcome
15/11/23	1.0	HTT	PI, PO, C/S, PF	PRO
11/01/24	1.0	Surgical Audit Committee	PO	PRO
23/01/24	1.0	Consultants Group	PO	PRO
23/01/24	1.0	HTC	PI, PO, FA	PRO

Examples of reasons for presenting to the group	**Examples of outcomes following meeting**
• Professional input required re: content (PI)	• Significant changes to content required – refer to Executive Lead for guidance (SC)
• Professional opinion on content (PO)	• To amend content & re-submit to group (AC&R)
• General comments/suggestions (C/S)	• For minor revisions (e.g. format/layout) – no need to re-submit to group (MR)
• For information only (FIO)	• Recommend proceeding to next stage (PRO)
• For proofing/formatting (PF)	• For upload to Intranet (INT)
• Final Approval (FA)	• Approved (A) or Not Approved, revisions required (NARR)

***To be attached to the document under development/review and presented to the relevant group**

Please record details of any changes made to the document in the table below

Date	Record of changes made to document
14/03/2024	Formatting changes by IGD to bring in line with document standards and accessibility requirements. Saved as version1.1

Contents

1. Introduction

This policy concerns transfusion of blood components (red blood cells, platelets, fresh-frozen plasma, cryoprecipitate and granulocytes) to patients of all ages in NHS Shetland whether in hospital or in the community.

The policy applies to all staff working for NHS Shetland who are involved in the "blood transfusion process"**.** This includes laboratory staff and all those involved with the collection, transportation and administration of blood and blood components and taking of blood samples for transfusion.

The aim is to ensure that the **RIGHT BLOOD** is given to the **RIGHT PATIENT** at the **RIGHT TIME**, every time.

2. Description of Service

Blood components are supplied by the Scottish National Blood Transfusion Service. SNBTS is responsible for the recruitment of blood donors, the collection and processing of whole blood and the testing, labelling and distribution of blood components to hospital transfusion laboratories.

The hospital transfusion laboratory is responsible for the storage and inventory management of blood components, pre-transfusion testing of patient samples and issue of compatible blood components to named patients.

- Pre-transfusion testing, compatibility testing and postnatal testing are carried out in the NHS Shetland Transfusion Laboratory.
- The storage and inventory management of blood and blood components for patients in NHS Shetland is the responsibility of NHS Shetland's Hospital Transfusion Laboratory 01595 743368.

3. Information and Advice about Transfusion

3.1. Governance of Transfusion Service in Shetland

The blood transfusion service for the whole of NHS Shetland is provided by The Gilbert Bain Hospital Laboratory in Lerwick.

Please remember that early and courteous communication with the transfusion laboratory staff promotes prompt and high quality care for the patient (Civility Saves Lives, 2023).

Biomedical Scientists are highly trained and skilled practitioners who have considerable expertise.

The NHS Shetland Hospital Transfusion Committee (HTC) has the oversight for safe clinical and laboratory transfusion practice in NHS Shetland. This is a multi-disciplinary group, with representatives of blood user specialties, whose existence is mandated by the Scottish Executive. It reports to the Operations Clinical Governance Group (OCGG) and to the Chief Executive via the Clinical Governance Committee and has an important role in transfusion governance, and in improving transfusion practice (Scottish National Blood Transfusion Service (SNBTS) 2021).

The Hospital Transfusion Team (HTT) comprises subject matter experts from clinical and laboratory transfusion background. Transfusion advice relating to technical matters is available from Biomedical Science (BMS) staff in the hospital transfusion laboratory while clinical advice can be obtained from a Haematologist (who can be contacted via NHS Grampian switchboard). See below for useful contact numbers (3.1).

3.2. Useful Contact Numbers

Name	Monday-Friday	Out of Hours
Gilbert Bain Laboratory	01595 743368	Via switchboard 01595 743000
Transfusion Practitioner	07974 092 875	N/A
Haematologist	NHS Grampian switchboard: 0345 456 6000	NHS Grampian switchboard: 0345 456 6000

4. Roles and responsibilities

It is the responsibility of the registered practitioner, in line with their professional body, to ensure that they are trained and competent to participate in any part of the transfusion process relevant to their role (see Appendix 1 for roles and responsibilities).

4.1. Training and Competencies

The UK Government (2005) and the Clinical Standards for Blood Transfusion (National Health Service Quality Improvement Scotland (NHS QIS), 2006), which is now known as NHS Healthcare Improvement Scotland (NHSHIS) stated that all staff involved in any part of the transfusion process must receive regular and adequate training.

Any member of staff that takes part in any aspect of transfusion **must** have valid transfusion training.

Transfusion training incorporates the following:

- Haemovigilance
- Authorising blood components
- ABO serology
- Blood sampling
- Blood component collection
- Blood component administration
- Caring for the patient receiving a transfusion

4.2. Transfusion Education

Only staff who have completed the relevant, mandatory Learn Blood Transfusion (LBT) theory modules can participate in the stage/s of the transfusion process appropriate to their roles. Modules are available via TURAS Learn available at https://learn.nes.nhs.scot/. The SNBTS Transfusion Team training matrix (Appendix 2) provides further guidance on appropriate theory-based modules for staff to enhance their knowledge and understanding of transfusion practice as appropriate to role.

Undergraduate students (nursing, midwifery, medical, operating department practitioners and physician associates) can participate, if appropriate, in procedures aligned to their roles which will provide a learning opportunity to develop the knowledge and skills required upon graduation and preparation for practice as a newly qualified practitioner (see Appendix 1). Undergraduate students must provide evidence of learning in both theory and clinical skills simulation for roles aligned to the transfusion process and be supervised as per local regional agreements with Higher Education Institutes and NHSS Boards. For local information access practice supervisors and practice assessors page of relevant Higher Education Institute which will detail the clinical skills guidelines or contact local Practice Education Facilitator. Overall accountability and responsibility

for undergraduate involvement in the transfusion process on practice placements is the responsibility of the registrant involved in practice supervision and assessment.

All students must provide evidence of safely demonstrating proficiency at the point of registration for the delivery of person-centred, safe and effective care.

If you do not have valid transfusion education and competency where appropriate for your job role, then you must not participate in transfusion practice.

Theoretical education (LBT: Safe Transfusion Practice) is completed every 2 years.

4.3. Blood Collection Competency

In addition to the relevant, mandatory e-learning theory modules there is an additional legal requirement under the Blood Safety Quality Regulations (BSQR) (UK Government, 2005) for all staff involved in the blood collection procedure. They must undertake a formal practical competency assessment by a trained assessor who has been trained in the Trainers & Assessor Accreditation Programme (TAAP) or Blood Component Collection Assessors Programme (BCCAP). These trained assessors must assess a minimum of one person per year, collect a minimum of one blood component per year and not be involved in any near miss or adverse event to maintain competence in assessing others. If the assessor does not meet all these criteria, they require to attend a further BCCAP session before they can assess others in blood collection. Contact your local Transfusion Practitioner for further advice if appropriate and relevant to role.

To maintain competence in blood collection staff must collect a minimum of one blood component per year and complete their relevant, mandatory e-learning every 2 years.

Therefore, practical assessment should only be undertaken once for staff and revalidated when a staff member has not collected blood for a period of a year or more, or if the individual has been involved in a near miss or adverse event. This is in line with the BSQR 2005 (UK Government, 2005) and follows the MHRA Blood Consultative Committee guidance 2008 which states that practice must be “commensurate with the level of risk associated with it".

5. Blood Transfusion Process

5.1. Key Principles

There are three key principles of safe blood administration, and they will be referred to throughout this policy:

1. Correct patient identification (ID)
2. Clear, accurate and timely documentation
3. Good communication

The blood transfusion process is complex with the following ten distinct stages identified.

1. **Consent** for transfusion
2. **Request** of the test or blood component for transfusion noting any specific requirements
3. Collecting the **blood sample** for pre-transfusion testing including positive patient ID and correct sample labelling
4. **Sample receipt** by the testing laboratory including checking the suitability of the sample for testing and booking into the laboratory information management system
5. **Testing** the sample in the laboratory and issuing a result for the patient clinical record
6. **Component selection** based on clinical request and results of testing
7. **Labelling** of component as compatible with/suitable for transfusion to a named patient
8. **Collection** of the blood component for a named patient using documentation with full patient ID
9. **Authorisation** of the blood component by a doctor or trained and competent non-medical authoriser of blood components to include any specific requirements
10. **Administration** of the blood component after rigorous bedside checks + monitoring of the patient before, during and after the transfusion

5.2. Patient Identification

Staff involved in transfusion need to be vigilant at each step in the transfusion process, particularly where patient identification is involved.

The patient must be wearing a **patient ID band** when they are being transfused regardless of location.

The **five core patient identifiers** that must be included on their ID band are:

1. First name
2. Last name

3. Date of birth
4. Community Health Index (CHI) number
5. Gender

The patient's ID band must match the information on all transfusion documentation exactly.

5.2.1. 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, and, if present a relative may be asked.

5.2.2. The Unidentified (Unknown) Patient

If a patient is admitted unconscious and their identity is unknown, the following procedure must be followed if blood transfusion is necessary:

- The patient must be allocated a unique identification number (TN Number)
- The minimum identifying dataset must include this number plus **Unknown Male/Female** (e.g. "Unknown Male TN123456").
- A patient identification band including this minimum data must be attached to the patient.
- This dataset must be used on sample tubes and request forms for transfusion until additional identification details become available.
- When additional identification details become available, the hospital laboratory must be informed.

The Unidentified Patient is a patient who cannot verify their name and date of birth.

A TN number will be issued to the patient until identification is verified, and laboratory records can be linked. Gender must also be included on all documentation.

5.3. Documentation

All transfusions **must** be authorised in the National Transfusion Record (see Appendix 3), which must be completed in full, and kept at the bedside during the transfusion then filed in the nursing notes section of the health records after transfusion completed.

The outcome of the transfusion including any adverse events/reactions must be recorded in the patient health records.

5.4. Decision to Transfuse

Decision to transfuse must be made by assessing all the risks and benefits of transfusion.

Clinicians should base their decision to transfuse on the patient's complete clinical picture. This includes an appropriate trigger for transfusion combined with an assessment of severity of symptoms related to the anaemia, thrombocytopenia or coagulation defect or expected adverse outcome if the blood component is not given. In order to maintain patient safety, it is essential to only transfuse patients when medically necessary and not to delay transfusing when it is clinically indicated. Patients have a right to refuse transfusion, however they must be given a complete clinical picture to enable them to make an informed decision.

Other treatment options should be considered. Alternatives to Blood Transfusion should be implemented on an individual patient basis. (National Institute for Care and Excellence Guidelines for Transfusion, 2015)

5.4.1. Decision to transfuse in elective surgery:

Haemoglobin transfusion thresholds for Elective Surgery

The transfusion threshold is the haemoglobin value at which transfusion will normally be indicated in stable conditions, and in the absence of other clinical signs and symptoms of anaemia.

Pre-operative thresholds

All patients undergoing major elective surgery should have a full blood count performed prior to surgery. There should be a sufficient time lapse between investigation and operation so that the late discovery of anaemia can be avoided.

Intra-operative thresholds

There is no indication that thresholds should differ during this period. However the use of intra-operative transfusion must reflect the ongoing rate of surgical blood loss, continued haemodynamic instability, and anticipated post-operative bleeding.

Post-operative thresholds

Transfusion is required at haemoglobin levels < 70g/L.

Patients with overt cardiovascular disease or with high risk of covert cardiovascular disease (e.g. elderly patients or those with peripheral vascular disease) are likely to benefit from transfusion when haemoglobin levels < 90g/L.

Transfusion is unjustified when haemoglobin levels >100g/L.

Predicting the need for transfusion

Eight risk factors predicting the need for allogenic transfusion have been defined:

- Low pre-operative haemoglobin
- Low weight
- Small height

- Female
- Age >65
- Estimated surgical blood loss
- The type of surgery
- Primary vs. revision surgery.

Please see the Maximum Surgical Blood Ordering Schedule (MSBOS) in Appendix 4 for further information with regards to ordering RCC.

5.5. Patient Information and Shared Decision Making

Every patient has a right to be treated with respect and have their concerns addressed.

Standardised information on risks and benefits of transfusion should be available to any patient considering a transfusion and to patients where a transfusion has been given in an emergency, after the event. Patient information leaflets entitled ‘Receiving a Blood Transfusion’ should be offered to all patients and are available in multiple languages, easy read and audio formats.

The information should be accessible and where necessary translated. It should be used to inform the patient about the following issues and hence guide shared decision making. Patients should be encouraged to ask questions.

- The reason for transfusion of blood components
- The risks and benefits of transfusion
- The transfusion process
- Any transfusion needs specific to the patient
- Any alternatives that are available
- That the patient has the option to refuse
- The patient will no longer be eligible to donate blood

To document understanding it is good practice to get the patient to repeat the information that they been given in their own words. Use teach-back approach to ensure that the patient has understood the information provided. The teach-back method allows you to better assess your patients’ understanding of their clinical condition and plan of care (The Health Literary Place, 2023). It allows you to uncover and clarify any misunderstandings patients may have. It also helps the clinician and patient engage in a more collaborative relationship.

5.6. Consent for Treatment

Informed consent for transfusion is necessary in all elective situations and the checklist on the front page of the National Transfusion Record should be completed for all elective transfusions by the authoriser.

Additionally, a record of the conversation with the patient should be documented in the patient's health records and all patients who receive a blood transfusion should receive a patient information leaflet entitled "Receiving a Blood Transfusion" as per Appendix 5. Please note these are also available online in alternative languages and formats including an audio version and easy read versions (Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC) 2023).

Patients who have a been given a blood transfusion and were not able to give informed and valid consent prior to the transfusion are informed of the transfusion prior to discharge and provided with the relevant patient information leaflet (Safety of Blood, Tissues and Organs (SaBTO), 2020) as per Appendix 5.

Patients on regular transfusion programmes do not require consent to be documented for every transfusion after the initial discussion but consent should be reviewed periodically. This is clarified in the SaBTO Consent guidance (SaBTO, 2020).

5.7. Written Authorisation

Blood components must be authorised in the National Transfusion Record. By a member of medical staff or designated non-medical authoriser of blood components

Text must be clearly written and unambiguous.

The authoriser must complete in full the following sections:

- Patient details (surname, forename, date of birth, CHI number and gender)
- Consent
- Risk assessment for transfusion associated circulatory overload (TACO) on front page of National Transfusion Record
- Which blood components are required and when
- Any specific requirements
- Transfusion of components (rate of transfusion should not exceed 4 hours from removal from controlled storage)

When authorising red cells (and platelets) authorisers should consider transfusion of a single unit for non-bleeding patients and reassess after each unit. Single unit authorisation will limit the potential and unnecessary exposure of risk to patients who receive a blood transfusion, including the development of Transfusion Associated Circulatory Overload (TACO). TACO is the most commonly reported cause of transfusion-related mortality and major morbidity (SHOT 2023). TACO is defined as acute or worsening respiratory compromise and/or acute or worsening

pulmonary oedema during or up to 12 hours of transfusion, with additional features including cardiovascular system changes not explained by the patient's underlying medical condition; evidence of fluid overload and a relevant biomarker (SHOT 2023).

5.8. Requests for Transfusion

All transfusion requests must be appropriate, accurate and specific.

- A request for a group and screen means that pre-transfusion testing will be performed but no blood will be issued
- A request for blood or blood components (a cross match) means that the sample will be tested and blood issued for the patient, based on the urgency denoted on the request form
- To convert a Group and Screen to a request for blood or blood components (cross match) contact the transfusion laboratory to see if they have a valid sample.

Routine Request: A cross match can be available in 2-4 hours. For routine requests with specific requirements please see section below for more information.

Urgent Request: Blood or blood components required as a priority, contact laboratory to discuss. A cross match can be available in 45 minutes.

Emergency Request: Emergency O Neg Red Cell Blood Components are available from the blood fridge for immediate collection in an emergency. Hospital laboratory staff should be telephoned immediately, including during out of hours which is available via switchboard, to advise them of the situation.

If additional components are required prior to the next routine flight, the requesting consultant or a member of his/her staff should liaise with the duty Haematology medical staff at NHS Grampian and the Hospital Laboratory at Gilbert Bain Hospital. SNBTS may need to discuss the patient's requirements with a member of the clinical staff and arrange an air ambulance flight to Shetland with the necessary blood and blood components.

The use of an air ambulance must be authorised by a member of the Senior Management Team (via Switchboard- ask for Silver Command who will escalate to Gold command if required).

Remember to inform the duty Biomedical Scientist who will make the necessary arrangements for the components to be collected by taxi, document their receipt and prepare the components for transfusion.

Specific Requirements: Patients with specific requirements including irradiated blood, phenotyped blood, CMV negative, alloantibodies and blood grouping anomalies may take up to 3 days for availability of components as the laboratory in Shetland does not perform antibody identifications and these components are not routinely held by the hospital laboratory. For these patients, blood samples will be transported to SNBTS Grampian for further cross matching and blood component then needs to be transported back to the Gilbert Bain Hospital.

In addition to asking the patient, check the case notes for a transfusion history. Specifically, for evidence of previous transfusion reactions, presence of alloantibodies, and evidence of any

previous specific requirements. This is only for routine non urgent requests for blood; however this should be checked in all cases where possible.

All patients scheduled for theatre who have known antibodies must be discussed with the laboratory. This includes patients which may only require a group and screen, in order to ensure that adequate stocks of antigen negative blood are available to cover the operation.

In emergency situations there may not be time to complete an antibody investigation and provide antigen negative blood. Here, the laboratory can provide serologically compatible blood. This does carry some risk and must only be issued if authorised by the SNBTS Duty Medical Officer.

The SNBTS issues a card to all patients where a significant Antibody has been detected. This card indicates the specific Blood Group that should be crossmatched for the holder of the card. When possible, the patient should be asked whether or not he/she possesses such a card.

Neonates: Request for infants less than 4 months old should include the full maternal and baby details i.e. surname, forename(s), date of birth gender and CHI. on the request form to enable lab to link records. Neonate must receive red cells that are ABO compatible with both mother and baby. Paedi packs are not routinely stocked by NHS Shetland. A fully crossmatched adult unit will be issued in an emergency with clinical staff calculating the required volume in ml/kg to be transfused.

5.9. Requesting Procedure

Registered nurses/midwives or medical staff can request pre-transfusion testing. It is the responsibility of the person completing the request form to fully complete all details on the request form including the need for any specific requirements (see Appendix 6).

A request to the hospital laboratory for grouping and/or compatibility testing and to request blood components must be made on a blood transfusion request form, which contains the following information for identification.

- The patient's forename (no abbreviations), surname, date of birth, CHI (Community Health Index) number /TN and gender.
- Location and clinical details.
- Signature and details of the person making the transfusion request and the date and time the sample was taken. The signature of person taking the sample if different from requestor must be included.
- An indication of urgency and any specific transfusion requirements must be documented.
- Samples taken in the community should specify where and when the patient will attend for transfusion.

All information should be unambiguous and written clearly or an addressograph label can be attached to the request form. However, the sample tube must be handwritten and the person who takes the pre-transfusion sample must sign the sample tube as well as the request form. The sample tube and request form must arrive in the hospital laboratory together. Incomplete or

missing details on the form or the sample tube will result in the sample being rejected. Repeat samples and forms will then have to be requested.

5.10. Blood Samples for Pre-transfusion Testing

5.10.1. Patient Identification

The following procedure MUST be followed every time a blood sample is taken for pre transfusion compatibility testing:

- The request form should be completed BEFORE the blood sample is taken.
- The patient must be asked to positively identify themselves by giving their full name (first and last name) and date of birth prior to being bled.
- This must be checked against the details on the request form, and, for in-patients, what is on the patient ID band. If there is any doubt, the patient should be asked to spell out their name to the individual taking the blood sample.
- Identity must not be assumed even for “familiar” patients who are regular attendees or long-standing in-patients.
- See section 5.2 for patients who are unable to identify themselves.

All in-patients including day case patients must wear a patient ID band or an alternative risk assessed identification device.

5.10.2. How to Take a Pre-Transfusion Sample

- The sample should be drawn into a pink EDTA tube 6ml. Ensure sample tube expiry date is valid prior to taking the sample.
- Once blood has been drawn, handwrite the details on the sample tube (laboratory will not accept a sample tube with an addressograph label) with the minimum identifiers whilst still at the patient’s side, taking details from patients ID band:
    - Surname
    - Forename
    - Date of Birth
    - CHI number or TN number
    - Gender

Pre-labelling of tubes is extremely dangerous and must be avoided.

Always label the sample fully **before** moving on to take blood from another patient.

Complete sampling procedure and send sample to laboratory before moving to next patient.

If in doubt, discard the sample and bleed the patient again.

5.10.3. Cross Match Sample Validity

If a transfusion has been completed and a further transfusion is to be given after 48 hours, a fresh sample of blood from the patient must be sent to the laboratory together with a new request form fully completed. Patients who have been transfused or pregnant within the last three months will require a sample to be less than 72 hours old at the time of transfusion. For all other patients, a sample is valid for up to seven days.

5.10.4. Postponement or cancellation of a transfusion

If a transfusion is postponed, the laboratory must be informed (Ext 3011) as soon as possible because matched blood will only be held for 48 hours unless special arrangements have been made for an extension.

As soon as it is known that blood reserved for a patient is no longer required, please notify the laboratory so that the blood may be returned to stock.

5.11. Collection and Delivery of Blood Components

Blood Collection is the only part of the transfusion process for which it is mandatory for the member of staff to be competency assessed. This is a legal requirement as part of the Blood Safety & Quality Regulations 2005, which are monitored by the Medicine Healthcare Regulatory Agency (MHRA, 2021).

5.11.1. Preparing for Collection of Blood Component

Before collecting the blood component, ensure that the patient's baseline observations have been completed and assessed as satisfactory. Also ensure the patient will be present and available to be transfused when the blood component arrives to the clinical area.

Only one unit should be collected for one named patient during each blood collection episode (unless there is a major haemorrhage at which point multiple components can be collected for that named patient/s).

Blood can only be issued against a National Transfusion Record (NTR) which details the component to be collected and contains the minimum data set as below:

- Surname
- Forename
- Date of Birth
- CHI number or TN temporary number
- Gender

5.11.2. Blood collection procedure (see Appendix 7)

- Red Cells and FFP to be collected from the issue fridge, Platelets or Cryoprecipitate to be collected from the laboratory.
- Check the patient details from the NTR against the patient details on the laboratory-generated label attached to the blood component pack.
- Check that it is the correct component type, donation pack number and expiry date.
- All blood components removed from the issue fridge must be signed for in the appropriate folder which is stored in the locked cupboard opposite the fridge. It is vital to know if any blood components are removed or returned and that the identification of staff collecting/ returning the component, date and timings are recorded. Only units that have been maintained at controlled temperature throughout can be considered safe for transfusion.
- The component should be placed in the red transit boxes and delivered directly to the clinical area.

5.11.3. Blood collection procedure during an emergency

In emergency situations it may be necessary to collect the emergency uncross-matched 'O' Negative blood that is not specifically prepared for the patient concerned. The issue of emergency stock must be controlled and documented, so that patient safety and audit trails are not compromised. To assist traceability ward staff must complete patient's full name, D.O.B and CHI number on the blue tag, along with date and time transfused, before returning to transfusion laboratory.

- Four units of pre-selected O Rh Negative Blood are located in the top drawer of the Blood Bank issue Fridge located outside the Laboratory. These are in individually sealed bags containing a unit labelled as "**O Negative Emergency Blood"** on the tag. Each unit contains instructions as how to fill in the pink and blue portions of the labels (Appendix 7).
- As soon as any units are removed, the Laboratory must be informed. Outside of normal working hours the Hospital Receptionist must be informed and will call in the Duty Biomedical Scientist.
- In extreme emergencies, the issue of O Rh Positive blood from the laboratory, may also become necessary if supplies of O Rh Negative blood are used up. However, in most cases there will be sufficient time to 'Group and Screen' and crossmatched blood will be issued in preference to the unscreened issue of O Rh Negative blood. In cases where there is no historical blood group and it is not possible to get a second sample for blood group conformation, the laboratory will issue group O red cells. In all instances provide the laboratory with a patient blood sample to allow retrospective testing.
- Within a given 24-hour period, where 10 or more units have been transfused, blood may be issued without crossmatch. After 72 hours, a fresh blood sample from the patient is required and a crossmatch performed.

5.11.4. Access to Blood Fridge:

The external Blood Bank issue fridge is located in the corridor immediately outside the Laboratory Services Department. The Fridge is locked at all times to ensure that no unauthorised access is made to the blood components and that the temperature cold chain is maintained.

5.11.5. Normal working Hours

(Weekdays 0830 – 1700 and Saturday 0900 – 1200)

Obtain key for Blood Bank issue fridge from Staff at Laboratory Services Department reception. Ring bell at reception to summon a member of the Laboratory staff. Key to be returned after blood components collected.

5.11.6. Out of Hours and Sundays

A key is held at the Main Hospital reception and should be signed out and returned after locking the issue fridge.

5.11.7. Blood Safety Precautions

Ensure that the Blood Bank door is open for the minimum time during removal and that all local procedures for checks and signing for components are adhered to.

5.11.8. Return of unused components

Normal Working Hours: Telephone laboratory to inform them of return of unused component. Hand the component directly to a Biomedical Scientist who will decide on the fate of the unit.

Outside of Normal working Hours: Please complete the appropriate section of the Blood Component Issue Return form, the folder is kept in the locked cupboard. The unit is then returned to the bottom drawer of the issue refrigerator in the quarantine box labelled **“Blood Products in Quarantine”.** These units cannot be reissued without specific authorisation from the Laboratory BMS on call.

5.11.9. Transfer of Blood Components to Clinical Area

Blood components should be transferred to the relevant clinical area in the red transit boxes provided (stored next to the blood issue fridge). These boxes should be returned to the laboratory as soon as convenient. The boxes have not been evaluated for storing components, therefore they must be used for transport only. This means that no more than one unit should be transported at a time. The only exception to this in a situation of massive blood loss, where there is absolutely no doubt that all the removed units will be transfused well within the requisite time. The envelopes containing the blue traceability stickers must not be returned in the boxes since laboratory staff will check these infrequently but instead returned in the provided envelope via internal mail.

5.11.10. Collection of Blood Products

Blood products such as Human Albumin Solution, Anti-D and Prothrombin Complex (PCCs) e.g. Beriplex/Octaplex are collected directly from the Pharmacy reception. Out of hours, please contact pharmacist on call.

5.12. Administration

All patients receiving blood should be in a clinical area where resuscitation facilities are available. After a blood component has been removed from approved blood storage and taken to the patient's bedside the following procedures should be strictly adhered to:

- Blood components must be administered by registered medical or nursing/midwifery staff who have undergone appropriate training as per local policy
- All patients receiving blood or blood components must wear an ID band (or risk assessed alternative identification device), whether an in-patient or a day patient.

Transfusions at night must proceed where there is a clear clinical indication and where there are sufficient staff to permit safe transfusion, including all required patient observations. There is a greater risk of clinical error at night so if there is no clear clinical indication to transfuse overnight, consideration should be given to deferral of transfusion to the following day.

See Appendix 8 for information on Administration sets and equipment used.

Use the National Transfusion Record Checklist for each component transfused to ensure the following steps are completed in the right order.

If the checking process is interrupted, the entire process should restart from the beginning.

- Before collecting components check baseline observations and ask patient to state full name and date of birth and check patient's response matches details on patient ID band.
- Check component label attached to blood pack against patient ID band.
- Proceed if component label and patient ID band details exactly match. Do not proceed if any discrepancies and contact the laboratory for advice.
- Put pink sticker in NTR next to where component has been authorised, ensuring date time and name of member of staff are documented on sticker.
- Detach blue tag and complete date time and sign to confirm the unit has been transfused. The unit is considered transfused if any volume of the component is given to the patient. Then return blue tag to the laboratory, these can be hand delivered to the laboratory or in the envelope provided via internal mail.
- Ensure patient has call bell and knows to inform staff if they feel unwell.

5.12.1. Platelet transfusions

Platelets are not routinely stocked by the laboratory in Shetland. In the event of a clinical need for platelets, the relevant consultant or a member of his/her staff should first liaise with the duty Biomedical Scientist who will then ask you to contact the SNBTS laboratory in Aberdeen 01224 552322. In exceptional circumstances there may be a requirement to arrange an air ambulance flight to Shetland with the platelets. This must be authorised by a Consultant. Remember to inform the duty Biomedical Scientist who will make the necessary arrangements for the platelets to be collected by taxi, document their receipt and make ready for transfusion. Platelet concentrates should be stored at 22□C with continuous agitation.

5.12.1.1. Collection from laboratory:

Refer to section 5.11 - Blood Collection. Platelets are **not** stored in the blood fridge. Platelet packs to be collected from the laboratory. Do not collect platelets from the laboratory until the patient is ready to be transfused.

5.12.1.2. Notes:

- Platelets must be transfused over a period of less than 60 minutes.
- Platelets are stored at 22°C and are continually agitated whilst in the laboratory. On arrival at the clinical area, they should be given as soon as possible and must never be placed in a fridge.
- Platelets must be administered through a blood or platelet administration set that has a 170 - 200 micron filter.
- Platelets must not be given through an administration set that has been used for blood.
- Platelets must only be given by gravity feed and not via a pump as this may damage the platelets.

5.12.2. Fresh frozen plasma (FFP) and Cryoprecipitate

Sixteen units of Group AB Fresh Frozen Plasma (FFP) are held at the laboratory (which can be used for all recipients). The FFP is stored at -30°C and will take approximately 30 minutes to thaw prior to issue. Advice on appropriateness and dose can be obtained from the on-call Haematology medical staff at NHS Grampian (via ARI Switchboard on 03454 566 000).

The laboratory also holds 4 pooled units of group AB cryoprecipitate.

The efficacy of the clotting factors in FFP and Cryoprecipitate reduces with time. These frozen components should therefore only be ordered when required (allowing for defrosting time). FFP can be stored refrigerated for up to 24 hours once thawed. Cryoprecipitate once thawed is stored at room temperature must be given within four hours.

5.12.2.1. Collection of FFP/ Cryoprecipitate from laboratory or fridge

Refer to section 5.11 – Blood Collection.

Once thawed, FFP is stored in Issue Fridge. Cryoprecipitate must not be refrigerated and must therefore be collected directly from the laboratory.

5.13. Monitoring of the Patient

Record observations on a National Early Warning System (NEWS2) chart and highlight as 'transfusion observations'.

Observations pulse (P), blood pressure (BP), temperature (T) and respiratory rate (RR) should be undertaken and documented for every unit transfused. Minimum monitoring of the patient receiving a blood transfusion should be strictly adhered to* and consists of:

- Baseline no more than 60 minutes prior to the start of the unit transfusion
- 15 minutes after the commencement of the unit transfusion
- Hourly thereafter until the unit is completed*
- Final observation within 60 minutes of completion of transfusion
- Contact Doctor to review if any significant changes in observations

Red Cell Concentrate must be completed within 4 hours of removal from cold storage. Platelets, FFP and Cryoprecipitate must be completed within 60mins from storage.

***In patients of all ages who are incapacitated it is more difficult to detect signs of early transfusion reactions therefore more frequent observations may be required.**

This includes those who are ventilated, confused, sedated or unconscious.

- All patients should be in easy reach of the bedside call bell, asked to inform clinical staff if they are feeling unwell, which might indicate a developing transfusion reaction.
- For patients who are not able to call for help if symptoms arise, consideration should be given to nursing them in an appropriate area where they can be readily observed rather than a side room or performing observations more frequently.
- Once a blood component transfusion has commenced, it is highly recommended that the patient remain in the same clinical area until the component has been fully transfused. Exceptions would be in a critically ill bleeding patient.
- All in-patients should continue to be observed for signs of a transfusion reaction for the 24 hours following transfusion (see Appendix 10 and 11 for the clinical management of transfusion reactions and signs and symptoms).
- Patients transfused as a day case, or patients discharged soon after transfusion (within 24 hours), should be provided with a patient information leaflet entitled 'Receiving a Transfusion' (this should have been given to the patient already as part of the consent process) as per Appendix 5 which advises them to look out for any symptoms which might be due to a transfusion reaction and includes space to provide a contact telephone number which they can call should they have any concerns.

5.14. Completion and documentation

On completion of the transfusion all component bags should be disposed as per hospital policy in the clinical waste. Administration sets must be disposed in appropriate clinical waste bin. All sharps must be disposed of in sharps bin.

Ensure that the pink adhesive traceability label has been completed and secured to the National Transfusion Record (NTR) and that the completed blue traceability tag has been returned to the transfusion laboratory.

Upon completion of the transfusion ensure the NTR is fully completed, including the time the transfusion was completed, before filing in the patient's health records.

Record in the patient's health record whether or not the transfusion achieved the desired effect, along with the management and outcome of any transfusion reactions or adverse events.

At discharge, ensure the patient and the patient's GP is informed that the patient has received a transfusion, and therefore no longer eligible to donate blood.

6. Anti D

6.1. Antental Care

6.1.1. Rh Programme and Anti-D Injection

The objective of the Rh programme is to prevent Haemolytic Disease of the Newborn (HDN), sometimes referred to as Haemolytic Disease of the Fetus due to Anti-D. It is therefore essential to determine the Rh D group and to screen for immune anti-D in all women who are or could be pregnant. This will decide the eligibility for Anti-D prophylaxis. (If immune Anti-D is present, prophylaxis will not be indicated).

6.1.2. Routine Antenatal Anti-D Prophylaxis (RAADP) for Women who are Rh D Negative

RAADP is recommended as a treatment option for all pregnant women who are rhesus D negative and who are not known to be sensitised to the Rh D antigen. Shetland has introduced this using a single dose of 1500IU at 28 weeks. This is a separate program from those described below. Full guidelines and supporting information are available from the Maternity Department.

6.1.3. Prophylaxis for Sensitising Events before Delivery

Up to 20 weeks gestation: A dose of 250 IU of Anti-D immunoglobulin is recommended for prophylaxis following sensitising events. A Kleihauer test is not required.

When bleeding continues intermittently after 12 weeks gestation, Anti-D Ig should be given at approximately 6 weekly intervals.

In pregnancies<12 weeks gestation, anti-D Ig prophylaxis is only indicated following ectopic pregnancy, molar pregnancy, therapeutic termination of pregnancy and in cases of uterine bleeding where this is repeated, heavy or associated with abdominal pain.

For all events after 20 weeks: Minimum dose: 500 IU Anti-D Ig should be given, followed by a Kleihauer test to identify FMH > 4 ml red cells; additional anti-D immunoglobulin should be given as required. (See 25). A further dose will be required at delivery of an RhD positive infant even if antenatal prophylaxis has been given and the Kleihauer test was negative.

6.2. Postnatal Care

6.2.1. Post Delivery

As soon as possible after delivery a sample from the mother is taken for group and antibody screen. A cord sample is also taken and so that the baby's blood group can be determined. **If the test results are not available within 72 hours, a dose of Anti-D should be offered regardless.** The standard post-delivery dose is 1500 IU (as recommended by the RCOG for remote Maternity Units)

6.2.2. Dosage and Administration

For successful immunoprophylaxis, anti-D immunoglobulin should be given as soon as possible after the sensitising event, but always within 72 hours. **If for some reason it is not given** before 72 hours, every effort should still be made to administer the Anti-D since a dose given within 10 days may provide some protection.

As a guide 125 IU of prophylactic Anti-D Immunoglobulin for every 1ml of Feto-Maternal Haemorrhage (FMH) is used. Where a large (i.e. >4ml) FMH is suspected, SNBTS should be contacted. The standard dose is 500 IU.

6.3. Kleihauer Test (Carried out by SNBTS Aberdeen)

A Kleihauer test is of therapeutic value as a screening test for Rh (D) Negative women.

This test estimates the size of the feto-maternal haemorrhage (FMH) by detecting the fetal haemoglobin (HbF) in the maternal circulation, the result may necessitate additional Anti-D immunoglobulin. This test can also be requested for clinical management of specific situations as indicated below*.

Up to 50% of large feto-maternal haemorrhages occur after normal deliveries. However, the following clinical circumstances are more likely to be associated with large feto-maternal haemorrhages and a Kleihauer test should be requested as soon as possible after the diagnosis has been made:

- Traumatic deliveries including caesarean section
- Manual removal of the placenta
- Unexplained hydrops fetalis
- Intrauterine deaths (IUD)
- Twin pregnancies (at delivery)
- Abdominal trauma during the third trimester*
- Sinusoidal fetal heart rate tracing associated with FMH*
- Stillbirths*

Note: False positive results may be obtained in conditions resulting in increased levels of HbF in the maternal cells (e.g. thalassaemia or hereditary persistence of fetal haemoglobin)

7. Stand Alone Policies

1. Major Haemorrhage Protocol
2. Obstetric Haemorrhage Clinical Guideline
3. People who Choose to Abstain from Blood and Blood Products

8. References

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Appendix 1 – Roles and responsibilities

Only staff who have completed the relevant **Learnbloodtransfusion (LBT)** theory modules can participate in the stage/s of the transfusion process appropriate to their roles. Modules are available via Turas Learn available at https://learn.nes.nhs.scot/

Process/Procedure	Can be performed by	Notes
Decision to transfuse (includes consent and patient information)	Medical staff	The decision to transfuse, including the discussion with the patient, the provision of a patient information leaflet and consent to transfusion must be clearly documented on the transfusion record.
	Registered nurse/midwife who has undertaken the recognised training course relating to the non-medical authorisation of blood components programme	
Requesting blood components from the transfusion laboratory	Medical staff, registered nurse/midwife who have undertaken specific training *or* when following an agreed protocol (such as the Maximum Surgical Blood Ordering Schedule)	Only staff who have adequate knowledge, skills, understanding and education in transfusion can request blood components for transfusion.
Pre-transfusion blood sampling	Phlebotomists, clinical support workers, registered nurse/midwife, operating department practitioner (ODP), medical staff	Staff can only participate in the pre-transfusion sampling procedure if evidence of competency is provided as per local training programme/agreement
	Registered bank/agency nurse/midwife/Locum doctor	As above
	Assistant Practitioners	As above
	Undergraduate nursing, midwifery, medical, ODP and physician associate students must provide evidence of meeting proficiency standards and be supervised at all times	Undergraduate students are required to provide evidence of theory and clinical based simulation skills as part of the undergraduate training programme. For local information access mentor page of relevant Higher Education Institute which will detail the clinical skills guidelines or contact local Practice Education Facilitator.
Authorising blood components	Medical staff	Blood components are not designated as medicinal products under the Medicines Act 1968. All blood components for transfusion must be authorised for the patient and the signature of the person authorising must be clearly documented on the transfusion record.
	Registered nurse/midwife who has undertaken the recognised training course relating to the non-medical authorisation of blood components	

Process/Procedure	Can be performed by	Notes
Collection of blood components for transport to the clinical area	Healthcare support workers, maternity care assistants, assistant practitioners, registered nurse/midwife, ODPs	Only if they have undertaken the required e-learning AND have undertaken a practical competency assessment by a trained component collection assessor (BSQR 2005).
Final (bed)side administration checking procedure	Registered nurse/ midwife, ODPs, medical staff	BSH (2017) recommend an independent checking procedure must be carried out by at least one registered practitioner. If a double independent check is required each practitioner must perform the check at the same time but independently of each other. Must provide evidence of training and competency in the final (bed) side checking procedure.
	Registered bank/agency nurse/midwife	As above
	Assistant Practitioners	Must provide evidence of training and competency in the final bedside checking procedure.
	Undergraduate nursing, midwifery, medical, ODP and physician associate students must provide evidence of meeting proficiency standards and be supervised at all times	Undergraduate students are required to provide evidence of theory and clinical skills simulation as part of the undergraduate training programme. For local information access mentor page of relevant Higher Education Institute which will detail the clinical skills guidelines or contact local Practice Education Facilitator.
Monitoring the transfused patient	Registered nurse/midwife, ODPs, healthcare support workers, maternity care assistant or medical staff.	Only those who have completed mandatory LBT: Safe Transfusion Practice
	Registered bank/agency nurse/midwife	As above
	Undergraduate nursing, midwifery, ODP and physician associate students can participate in the monitoring of patients being transfused.	Undergraduate students are required to provide evidence of theory and clinical skills simulation as part of the undergraduate training programme. For local information access mentor page of relevant Higher Education Institute which will detail the clinical skills guidelines or contact local Practice Education Facilitator.

Appendix 2 – Training matrix – from SNBTS TT

'Once for Scotland' approach to Transfusion Education

SNBTS Transfusion Team Training Matrix aligned to roles

Learn Blood Transfusion (LBT) Module	Registered Nurse	Registered Midwife	Nurse / Non Medical Authoriser	ODP	Consultant & SAS Doctor	Doctors in training	GP covering community hospitals	Nurse in community hospital	BMS in Transfusion	MLA in Transfusion	Porter	HCSW & MCA	Phlebotomist	Student Nurse	Student Midwife	Medical Student
Safe Transfusion Practice	M	M	M	M	M	M	M	M	M			M		M	M	M
Safe Transfusion Laboratory Practice									M	M						
Safe Transfusion Practice for Paediatrics	M		M	M	M	M								M	M	M
Blood Components and Indications for Use	M	M	M	M	M	M	R	R	M					R	R	R
Anti D Clinical Module		M			M (O)	M (O)									M	
Acute Transfusion Reactions	M	M	M		M	M	M	M						M	M	M
Consent for Transfusion	R	R	M		M	M	M	R						M	M	M
Learn Cell Salvage				M	M											
Nurse Authorisation/NMABT			M													
Anti D Laboratory Module									M							
GMP for Blood Establishments*									M	M						
GMP for Hospital Blood Banks*									M	M						
Blood Collection Pathway**											M	M				
Phlebotomy Pathway***	M	M										M	M			
Safe Blood Sampling for Transfusion Video	M	M		R		M	R	M				M	M	M	M	M

* course relevant to staff working in either a blood establishment or a blood bank
** for staff only involved in the blood collection procedure who have not completed LBT: safe transfusion practice as mandatory training
*** for staff only involved in the sampling procedure who have not completed LBT: safe transfusion practice as mandatory training

KEY
M - Mandatory for role
M - Mandatory if working in obstetrics
M - Mandatory if appropriate to role / clinical area
e.g. Paediatrics, A&E, Theatres, Critical Care, Haematology, cell salvage
R - Recommended for this role

Abbreviations	
ODP	Operating Department Practitioner
BMS	Biomedical Scientist
MLA	Medical Laboratory Assistant
HCSW	Health Care Support Worker
MCA	Maternity Care Assistant
SAS	Speciality and Associate Specialists

NHS Board Transfusion Committees are asked to use professional judgement in relation to mandatory training for specific staff roles where no transfusion requirements exist.

2020-04-24SNBTSTT_LBTTrainingMatrix_Version1.2_ReviewDecember2021

Endorsed by the Scottish Clinical Transfusion Advisory Committee November 2019

Appendix 3 – The National Transfusion Record

Transfusion Record

This is a permanent record of transfusion and must be filed or scanned into the nursing notes section of the patient's health records

NHS National Services Scotland

Patient Details		
Hospital/Unit:	**Affix label here or write patient details**	
Ward/Dept:	Forename:	Surname:
Consultant:	Gender:	Date of birth:
Patient's weight (kg):	CHI number:	

Section to be completed prior to prescribing/authorising blood components

If this patient is on a regular transfusion programme or has previously consented e.g. pre-operatively, is there evidence of consent for transfusion and previous discussion recorded in the patient's health record?

Yes ☐ Proceed to prescriber/authoriser signature No ☐ Complete checklist below

- Risks and benefits, alternatives and option to refuse discussed? Yes ☐ No ☐
- Patient offered a 'Receiving a Transfusion' patient information leaflet? Yes ☐ No ☐
- Reason for transfusion discussed with patient and documented in health records? Yes ☐ No ☐
- Has the patient experienced a previous transfusion reaction? Yes ☐ No ☐
- Does the patient consent to have a blood transfusion? Yes ☐ No ☐
- Is an advance directive (refusal of blood transfusion) document in place? Yes ☐ No ☐

If it is not possible to discuss with the patient, please give reason/details below:

It is the responsibility of the authoriser of blood components to ensure that any specific transfusion requirements are met (e.g. irradiated, CMV negative components, or use of a blood warmer).

Consider the risk of Transfusion Associated Circulatory Overload (TACO)

1. Consider if the patient has any of the following risks for TACO and tick as many as apply:

☐ Congestive cardiac failure, severe aortic stenosis, moderate to severe LV dysfunction?	☐ Positive fluid balance?
☐ Taking a regular diuretic?	☐ Receiving supplementary fluids either currently or in the last 24 hours?
☐ Pulmonary oedema?	☐ Peripheral oedema?
☐ Respiratory symptoms of unknown cause?	☐ Hypoalbuminaemia?
☐ Severe anaemia?	☐ Renal impairment?
☐ Other risk, please specify:	

If no, sign below and proceed.

If yes:

2. Does the benefit of the transfusion outweigh the risks? Yes ☐ No ☐

3. Can the transfusion be safely deferred? Yes ☐ No ☐

If proceeding with transfusion consider the patient's body weight before authorising the blood component, especially for low body weight adult patients, and consider prophylactic diuretic if medically indicated.

When authorising red cells authorisers should consider transfusion of a single unit for non bleeding patients and clinically reassess after each unit

I confirm that the patient has consented to transfusion and I have undertaken a TACO risk assessment

Signature: _____ **Print Name:** _____ **Designation:** _____ **Date:** _____

Version 1.0 February 2020 NTDOC1

Blood component authorisation to be completed by medical staff or *designated* non-medical authoriser of blood components

Please note that red cell transfusion is usually not appropriate for the treatment of chronic iron deficiency anaemia, B12 or folate deficiency. Medications relating to blood transfusion such as diuretics or antipyretics must be in the patient's drug prescription chart.
For blood component dosing guidance consult local transfusion policy.

Affix label or write patient details:

Forename:

Surname:

Date of Birth:

CHI:

The checklist for *each unit* must be completed and signed by member of staff administering the blood component

UNIT 1

Bedside verbal ID check	Patent cannula	Baseline obs (no more than 60 mins prior to start)	Ensure patient's ID details (on ID band) match the tag exactly	Component matches prescription	Inspect bag (expiry, condition)	Once checks complete, print name	Completed blue tag sent to lab	Date & time transfusion completed
☐	☐	☐	☐	☐	☐	_____	☐	_____

Blood component	Unit or mls	Specific requirements/ Instructions (please tick)	*Complete & attach pink portion of compatibility label or complete:*
		Irradiated ☐ CMV negative ☐ Blood warmer ☐ Other medication ☐	

Reason for transfusion: Acute blood loss ☐ Low platelet count ☐ Other:
Anaemia ☐ Abnormal coagulation ☐

Date	Duration	Authoriser's signature

UNIT 2

Bedside verbal ID check	Patent cannula	Baseline obs (no more than 60 mins prior to start)	Ensure patient's ID details (on ID band) match the tag exactly	Component matches prescription	Inspect bag (expiry, condition)	Once checks complete, print name	Completed blue tag sent to lab	Date & time transfusion completed
☐	☐	☐	☐	☐	☐	_____	☐	_____

Blood component	Unit or mls	Specific requirements/ Instructions (please tick)	*Complete & attach pink portion of compatibility label or complete:*
		Irradiated ☐ CMV negative ☐ Blood warmer ☐ Other medication ☐	

Reason for transfusion: Acute blood loss ☐ Low platelet count ☐ Other:
Anaemia ☐ Abnormal coagulation ☐

Date	Duration	Authoriser's signature

When authorising red cells authorisers should consider transfusion of a single unit for non bleeding patients and clinically reassess after each unit

General Guidance on Transfusion Observations

Record on a **National Early Warning System (NEWS)** chart (or local equivalent) and highlight as 'transfusion observations'
The **minimum*** transfusion observations for each unit are temperature, blood pressure, respiratory rate & pulse at:

- **Baseline** no more than **60 minutes prior** to the start of the unit
- **15 minutes after** the start
- **Hourly thereafter** until the unit is completed *
- At **the end** of each unit, within 60 minutes of completion of transfusion

NB All blood component transfusions must be completed within 4 hours of removal from controlled storage.

***In patients of all ages who are incapacitated it is more difficult to detect signs of early transfusion reactions therefore more frequent observations may be required. This includes those who are ventilated, confused, sedated or unconscious**

Version 1.0 February 2020 NTDOC1

Appendix 4 – Maximum Surgical Blood Ordering Schedule (MSBOS)

These are the recommendations for cross-matching and ‘group & screen’ for elective and emergency procedures. The following groups of patients may be at risk of increased blood loss and its effects and should be discussed with the anaesthetist:

- Patients who are on/have just stopped warfarin and whose INR is greater than 1.2 at the time of surgery
- Patients who have a haemoglobin on testing which is below the normal range
- Patients who are actively bleeding or shocked
- Patients who have a history of abnormal bleeding after surgery or who have a known clotting/platelet problem (Haemophilia/Von Will brands Disease/thrombocytopaenia)
- Patients who have abnormal antibodies noted on Group and Screen (because of potential difficulty obtaining blood)

All orders in excess of the recommendations given below need to be discussed with the Biomedical Scientist on call.

Breast	
Mastectomy	G&S

Colorectal	
Right and extended right colectomy (unless anaemic)	G&S
Left Hemicolectomy	G&S
Sigmoid Colectomy	G&S
Anterior resection	G&S
Total Colectomy	2 Units
Panproctocolectomy	2 Units
Abdomino-perineal resection	2 Units
Rectopexy	G&S
Planned exploratory laparotomy	G&S
Emergency Laparotomy	G&S
Bleeding peptic ulcer	Up to 4 units
Bleeding from large bowel	Up to 4 units

General	
Incisional hernia	G&S
Cholecystectomy and exploration of common bile duct	G&S
Splenectomy	G&S
Liver biopsy	G&S

Vascular Surgery	
Embolectomy	G & S
Ruptured aneurysm	Refer to Major Haemorrhage Protocol
Ligation	G&S

Urology	
Trans-urethral prostatectomy (TURP)	G&S
Trans-urethral resection of bladder (TUR-BT)	G&S
Nephrectomy	2 Units
Open prostatectomy	2 Units
Circumcision	G&S
Vasectomy	G&S

Orthopaedics	
Fractured neck of femur	G&S
Dynamic hip screw	G&S

Obstetrics	
Emergency Caesarean section	G&S
Elective Caesarean Section	G&S
Trial of scar	G&S
Retained placenta	G&S
Placenta praevia	2 Units (on stand-by, G&S every 3 days)
Ante-partum / Post-partum haemorrhage	Refer to Obstetric Haemorrhage Clinical Guideline

Gynaecology	
Medical management of miscarriage	G&S
Threatened miscarriage	G&S
Evacuation Retained Products Conception (ERPC)	G&S
Ectopic pregnancy High risk (clinical signs of bleeding or low Hb)	2 Units
Ectopic pregnancy Low Risk (laparoscopy for possible ectopic)	G&S
Tubal Surgery	G&S
Ovarian cystectomy (small cyst) / wedge resection	G&S
Oophorectomy	G&S

Appendix 5 – 'Receiving a Transfusion' Patient Information Leaflet

BSH Guidelines for Administration of blood components, state that 'Patients and/or carers should be informed about the possibility of acute and delayed haemolytic transfusion reactions. Organisations should consider developing mechanisms that give patients access to clinical advice especially when discharged home shortly after completing a transfusion.'

SNBTS provides a Patient information Leaflet "Receiving Blood Transfusion" that must be given to everyone receiving transfusion – **Figure 1.** PECOS order codes are **NATL-146** Receiving a Blood Transfusion PIL.

Outpatient areas are advised to provide a patient with appropriate contact numbers to be used following discharge in the event of becoming unwell after transfusion – **Figure 2.**

The template below can be used to design a local sticker (Figure 2) that can then be attached to the leaflet (Figure 1);

Figure 1: SNBTS Patient Information Leaflet "Receiving a Blood Transfusion" NATL-146

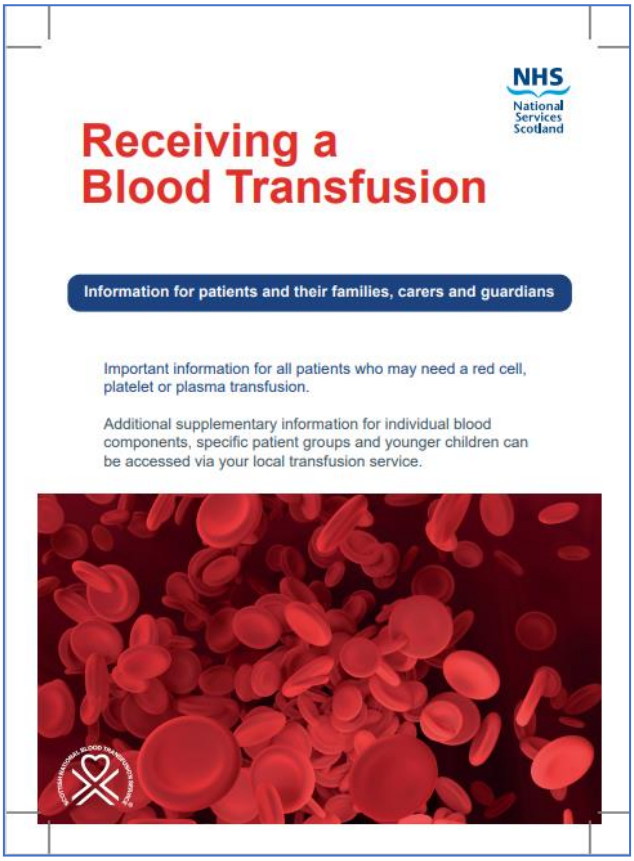


Figure 2: Out of hospital contacts template sticker

Contact [**insert clinical area here**] for urgent advice (if unwell)

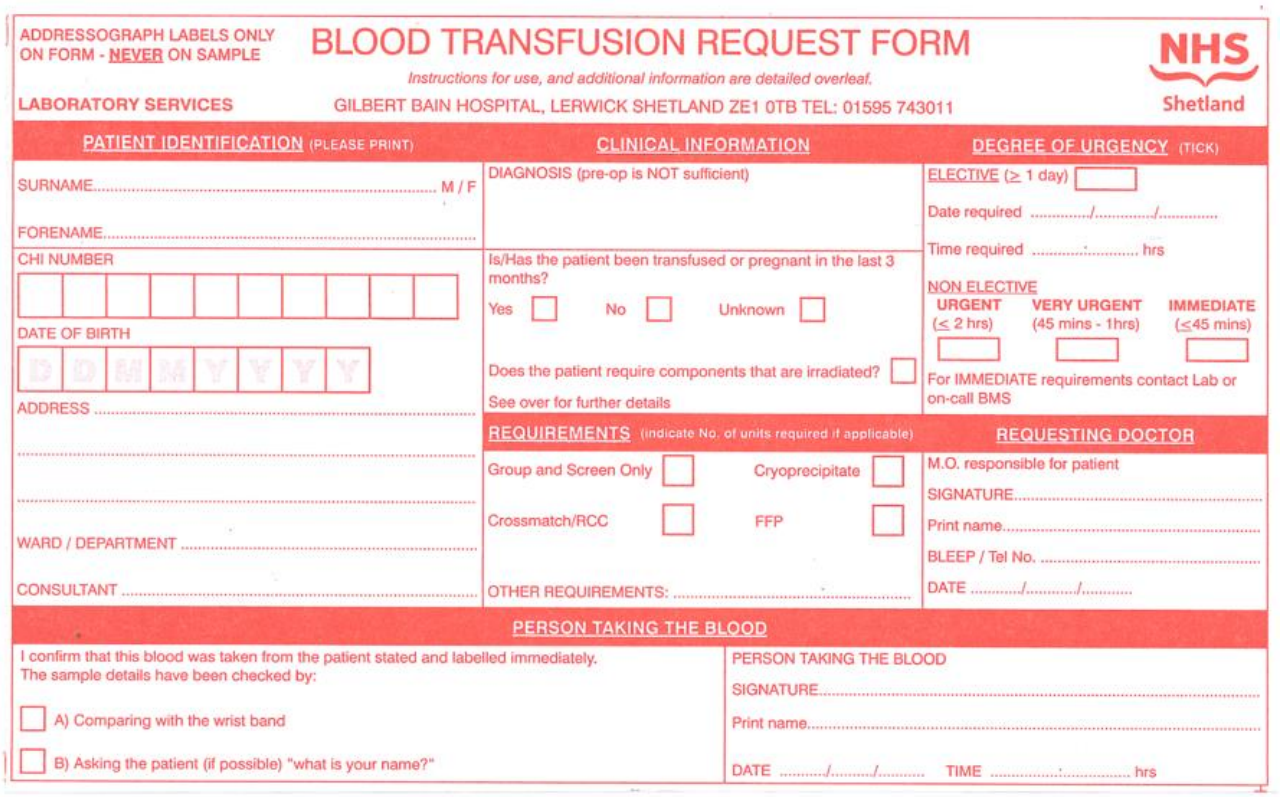
Mon – Fri 9am – 5pm –015950 743 000 Ext. [**Insert clinical area extension number here**]

Out of hours/weekend – 015950 743 000 Ext. [**Insert clinical area extension number here**]

or NHS24

Appendix 6 – Local Transfusion Request Form

Front of form:



ADDRESSOGRAPH LABELS ONLY
ON FORM - NEVER ON SAMPLE

BLOOD TRANSFUSION REQUEST FORM

Instructions for use, and additional information are detailed overleaf.

NHS Shetland

LABORATORY SERVICES

GILBERT BAIN HOSPITAL, LERWICK SHETLAND ZE1 0TB TEL: 01595 743011

PATIENT IDENTIFICATION (PLEASE PRINT)

SURNAME..... M / F

FORENAME.....

CHI NUMBER

DATE OF BIRTH

D D M M Y Y Y Y

ADDRESS .....

.....

.....

WARD / DEPARTMENT .....

CONSULTANT .....

CLINICAL INFORMATION

DIAGNOSIS (pre-op is NOT sufficient)

Is/Has the patient been transfused or pregnant in the last 3 months?

Yes ☐ No ☐ Unknown ☐

Does the patient require components that are irradiated? ☐

See over for further details

DEGREE OF URGENCY (TICK)

ELECTIVE (≥ 1 day) ☐

Date required ...../...../.....

Time required ..... hrs

NON ELECTIVE

URGENT (≤ 2 hrs)	VERY URGENT (45 mins - 1hrs)	IMMEDIATE (≤45 mins)
☐	☐	☐

For IMMEDIATE requirements contact Lab or on-call BMS

REQUIREMENTS (indicate No. of units required if applicable)

Group and Screen Only ☐ Cryoprecipitate ☐

Crossmatch/RCC ☐ FFP ☐

OTHER REQUIREMENTS: .....

REQUESTING DOCTOR

M.O. responsible for patient

SIGNATURE.....

Print name.....

BLEEP / Tel No. .....

DATE ...../...../.....

PERSON TAKING THE BLOOD

I confirm that this blood was taken from the patient stated and labelled immediately.
The sample details have been checked by:

☐ A) Comparing with the wrist band

☐ B) Asking the patient (if possible) "what is your name?"

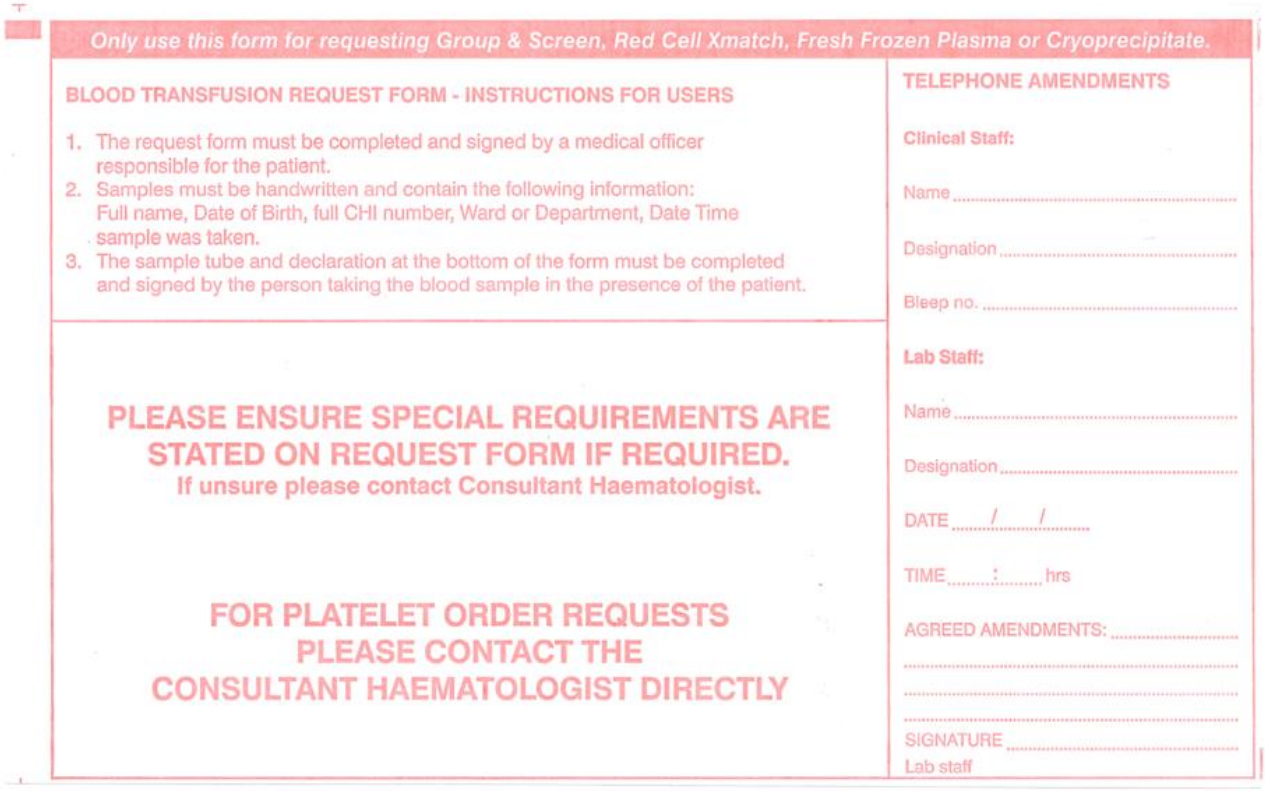
PERSON TAKING THE BLOOD

SIGNATURE.....

Print name.....

DATE ...../...../..... TIME ...:... hrs

Back of form:



Only use this form for requesting Group & Screen, Red Cell Xmatch, Fresh Frozen Plasma or Cryoprecipitate.

BLOOD TRANSFUSION REQUEST FORM - INSTRUCTIONS FOR USERS

1. The request form must be completed and signed by a medical officer responsible for the patient.
2. Samples must be handwritten and contain the following information: Full name, Date of Birth, full CHI number, Ward or Department, Date Time sample was taken.
3. The sample tube and declaration at the bottom of the form must be completed and signed by the person taking the blood sample in the presence of the patient.

PLEASE ENSURE SPECIAL REQUIREMENTS ARE STATED ON REQUEST FORM IF REQUIRED.
If unsure please contact Consultant Haematologist.

FOR PLATELET ORDER REQUESTS PLEASE CONTACT THE CONSULTANT HAEMATOLOGIST DIRECTLY

TELEPHONE AMENDMENTS

Clinical Staff:

Name .....

Designation .....

Bleep no. .....

Lab Staff:

Name .....

Designation .....

DATE ..../..../....

TIME ...:... hrs

AGREED AMENDMENTS: .....

.....

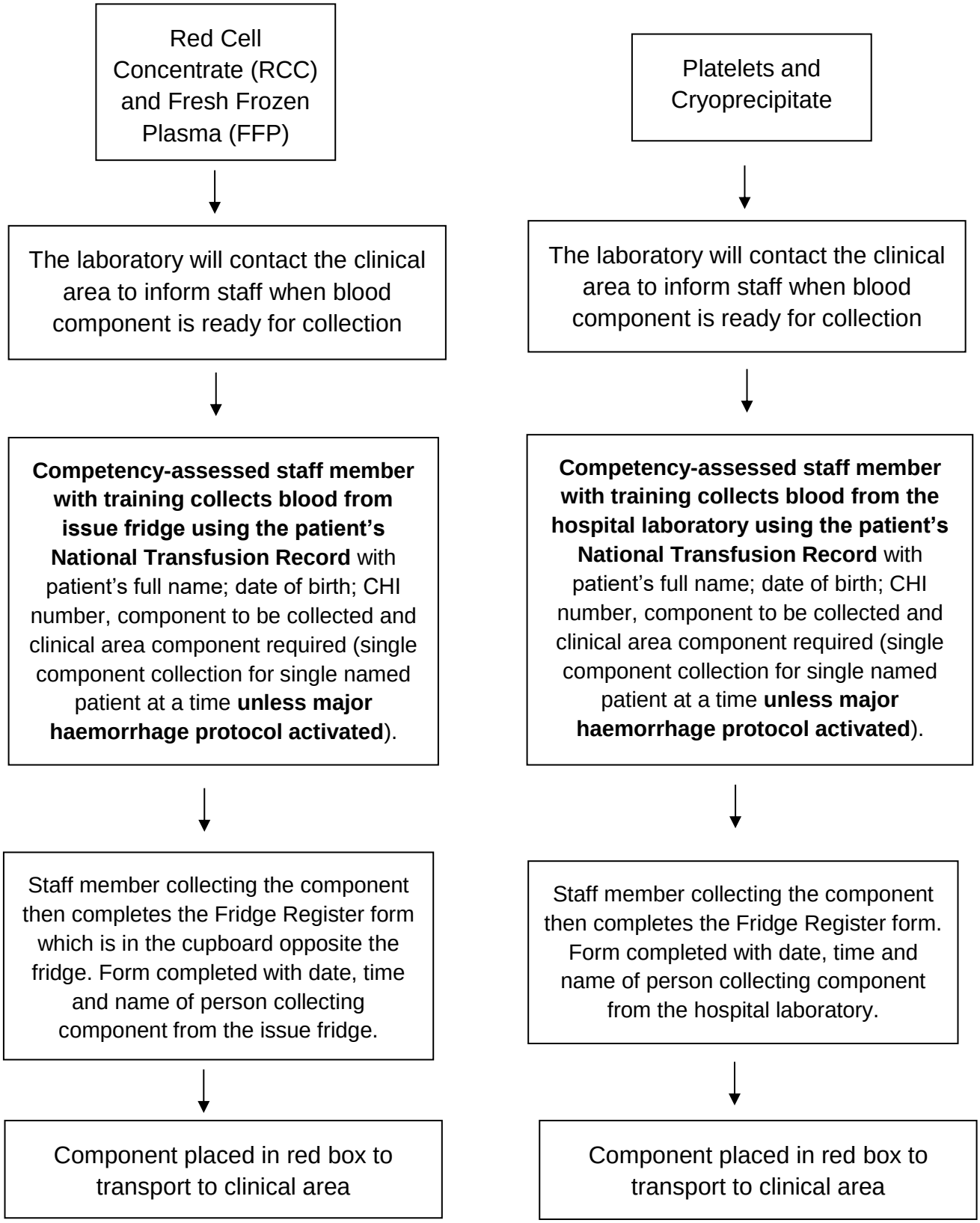
.....

.....

SIGNATURE .....

Lab staff

Appendix 7 – Blood Collection Flowchart



Appendix 8 – Blood bag label and traceability

Confirming the transfusion - traceability

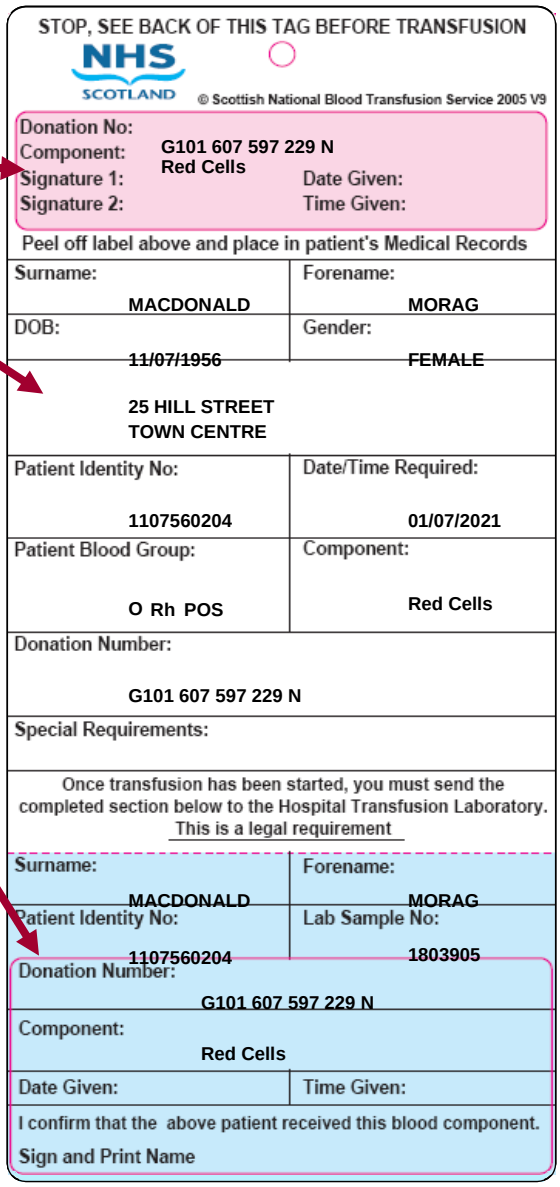
On commencement of transfusion of Red Blood Cells, Platelets, Fresh Frozen Plasma and Cryoprecipitate the Compatibility Label attached to the unit must be completed.

Pink “peel off” part must be signed by the registered staff member checking / administering the transfusion with the date and time stated and placed on the blood prescription sheet, which must be filed in the patient’s Transfusion Record.

White Section of the label remains secured to the Blood Component.

The Blue “tear off” section MUST be completed in full by the registered member of staff administering the transfusion, and MUST be returned to Hospital Transfusion laboratory as soon as possible but always within 3 days of the transfusion. (Even if the patient only receives a fraction of the unit of blood this still means the patient has received a transfusion).

This is to comply with European and UK law – the Blood Safety and Quality Regulations 2005.



STOP, SEE BACK OF THIS TAG BEFORE TRANSFUSION

NHS SCOTLAND

© Scottish National Blood Transfusion Service 2005 V9

Donation No: G101 607 597 229 N
Component: Red Cells
Signature 1:
Signature 2:
Date Given:
Time Given:

Peel off label above and place in patient's Medical Records

Surname: MACDONALD	Forename: MORAG
DOB: 11/07/1956	Gender: FEMALE
25 HILL STREET TOWN CENTRE	
Patient Identity No: 1107560204	Date/Time Required: 01/07/2021
Patient Blood Group: O Rh POS	Component: Red Cells
Donation Number: G101 607 597 229 N	
Special Requirements:	

Once transfusion has been started, you must send the completed section below to the Hospital Transfusion Laboratory.
This is a legal requirement

Surname: MACDONALD	Forename: MORAG
Patient Identity No: 1107560204	Lab Sample No: 1803905
Donation Number: G101 607 597 229 N	
Component: Red Cells	
Date Given:	Time Given:

I confirm that the above patient received this blood component.
Sign and Print Name

Appendix 9 – Equipment – administration sets, blood warmers, infusion devices

Blood Administration:

Blood components can be transfused through most peripheral or central venous catheters, although the flow rate is reduced by narrow lumen catheters and long peripherally inserted central catheters (PICC lines).

They should be transfused through an administration set with a 170–200 µm integral mesh filter. Paediatric administration sets with a smaller prime volume are available for small volume transfusions. Although special platelet administration sets are available, it is safe to use a standard blood administration set, but platelets should not be transfused through a set previously used for red cells as some platelet loss will occur. It is not necessary to prime or flush blood administration sets with physiological (0.9%) saline but a new administration set should be used if blood components are followed by another infusion fluid. Although there is little evidence, current guidelines recommend changing blood administration sets at least every 12 hours to reduce the risk of bacterial infection.

Blood and other solutions can be infused through the separate lumens of multi-lumen central venous catheters as rapid dilution occurs in the bloodstream. Where possible, one lumen should be reserved for the administration of blood components.

Blood warmers are most commonly required in:

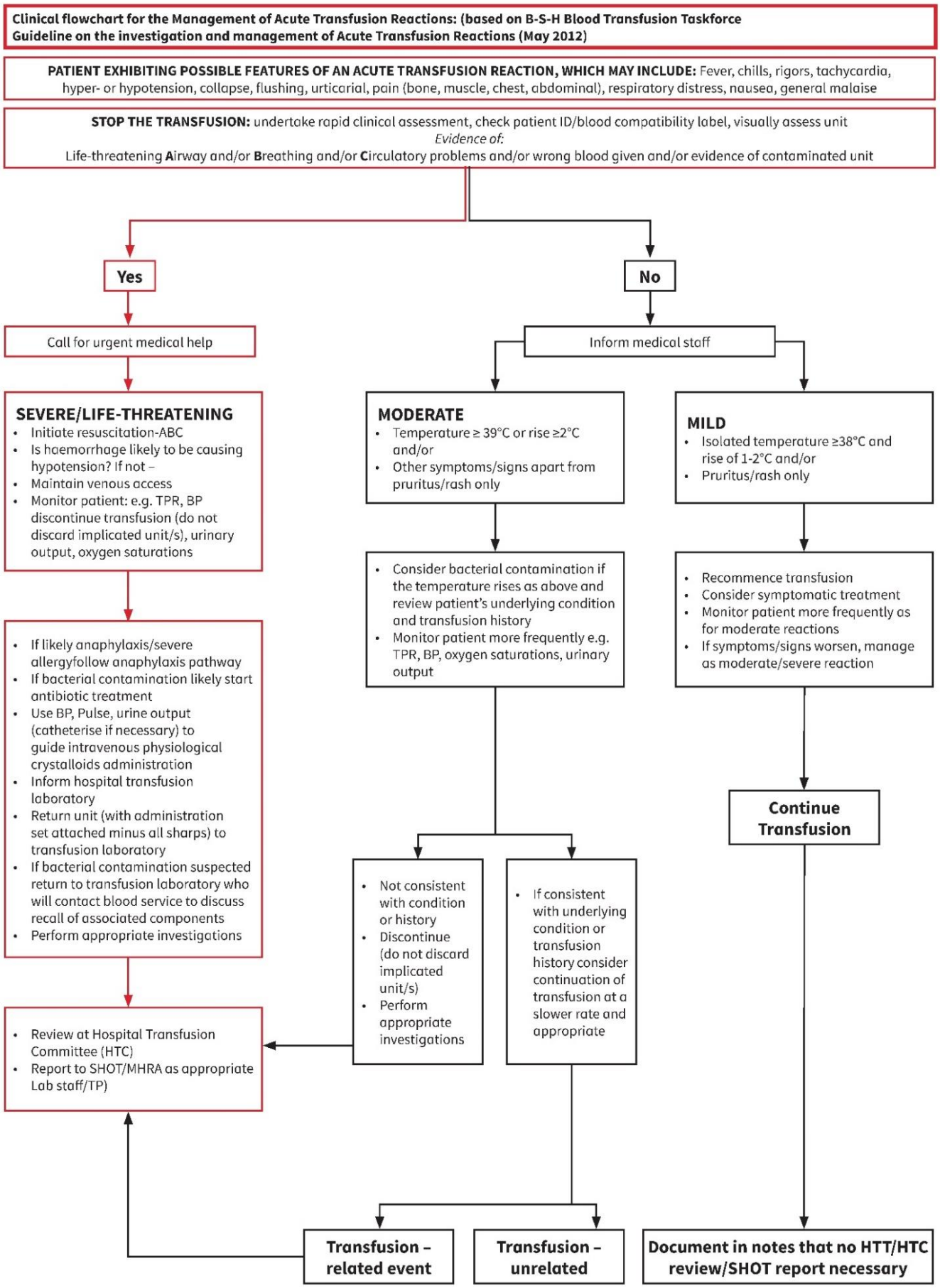
- Large volume rapid transfusion i.e.
    - >50ml/kg/hour for adults
    - >15ml/kg/hour for infants
- Exchange transfusion in infants
- Patients with cold-agglutinins requiring transfusion

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

Infusion devices are commonly used to achieve optimum flow rates. Always check the manufacturer's specification to ensure that the device is suitable for the infusion of blood components. Specific Blood Administration Sets must always be used when using an infusion device for transfusing patients.

In large volume rapid infusions, the use of a **pressure device** is recommended (rather than manual squeezing of blood bags). The maximum pressure that should be applied to a blood transfusion pack is 300mmHg.

Appendix 10 – Reverse of National Transfusion Record which shows Clinical Flowchart for the Management of Acute Transfusion Reactions



Appendix 11 – Adverse reactions Signs and Symptoms

If the patient experiences any transfusion reaction, stop the transfusion and seek medical advice. A mild reaction may be the initial stages of a severe reaction, do not ignore.

Type of Reaction	Signs and Symptoms	Management
Mild Reaction	Temperature rise Rash Pruritus	Stop the transfusion Inform the medical staff Recheck the patient and component compatibility Assess the patient Commence appropriate treatment Document the adverse event and subsequent management in the patient's notes. If there is no improvement within 15 minutes, or if any deterioration occurs, treat as a severe reaction.
Severe Reaction	Signs and symptoms: Rigors Restlessness Tachycardia Anxiety Pruritus Palpitations Dyspnoea Headache Pyrexia > 1.5oC from baseline Hypotension Haemoglobinuria Unexplained bleeding DIC Chest pain Loin/back pain Pain at infusion site Respiratory distress	Stop Transfusion Inform medical staff and commence appropriate resuscitation procedures Disconnect blood administration set and replace with an administration set which is run through and attached to 500 mls of 0.9% sodium chloride Recheck patient and component compatibility Inform blood bank and return pack to them still attached to the administration set (with roller clamp closed) and sealed in two polythene bags. Return all used packs along with this. Take blood samples as requested by the blood bank, including blood cultures (Refer to Blood Transfusion Manual) Document the adverse event and subsequent management in the patient's notes. Patient informed of adverse event at appropriate time and this discussion documented in clinical notes.

Appendix 12 – Rapid Impact Checklist

An equality and diversity impact assessment tool:

<table>
<tr><td colspan="2">Which groups of the population do you think will be affected by this proposal?*
Any patient who requires a blood transfusion will be affected by this policy. This will include, but is not limited to, patients from any cultural, ethical, religious background and of any sexual orientation. This policy ensures an evidence-based approach to blood transfusion in Shetland. It provides staff with key information about each stage of the blood transfusion process to ensure high levels of blood and patient safety are maintained.
Other groups:
• Minority ethnic people (incl. Gypsy/travellers, refugees & asylum seekers)
• Women and men
• People with mental health problems
• People in religious/faith groups
• Older people, children and young people
• People of low income
• Homeless people
• Disabled people
• People involved in criminal justice system
• Staff
• Lesbian, gay, bisexual and transgender

*the word proposal is used as shorthand for the policy, procedure, strategy or proposal that is being be assessed</td></tr>
<tr><td colspan="2">In the following sections, please consider what positive and negative impacts you think there may be and which specific groups will be affected by these impacts?</td></tr>
<tr><td>What impact will the proposal have on lifestyles?
For example, will the changes affect:
• Diet and nutrition
• Exercise and physical activity
• Substance use: tobacco, alcohol and drugs
• Risk taking behaviour
• Education and learning or skills</td><td>This policy will have no impact on patients lifestyles. In order to ensure people who are consented to receive blood transfusions (or equally people who choose to abstain from use of blood or blood components), the policy clearly outlines the consent process to ensure patients are well informed. This includes the offer of a patient information leaflet as part of the consent process.</td></tr>
</table>

Will the proposal have any impact on the social environment? Things that might be affected include: • Social status • Employment (paid or unpaid) • Social/Family support • Stress • Income	This policy will have no effect on patients social environments.
Will the proposal have any impact on the following? • Discrimination? • Equality of opportunity? • Relations between groups? • Fairer Scotland Duty	This policy ensures that all patients have equal access to information to provide informed consent. This includes availability of patient information leaflets in multiple languages and formats including Easy Read and Audio.
Will the proposal have an impact on the physical environment? For example, will there be impacts on: • Living conditions? • Working conditions? • Pollution or climate change? • Accidental injuries or public safety? • Transmission of infectious disease?	This policy ensures an evidence-based approach to blood transfusion in Shetland. It provides staff with key information about each stage of the blood transfusion process to ensure high levels of blood and patient safety are maintained and in line with UK Legislation. It will have no impact on the physical environment.
Will the proposal affect access to and experience of services? For example: • Health care • Transport • Social services • Housing services • Education	There will be no adverse effect to accessing services. Only health care service experience will hope to be changed, through ensuring clinical practice continues to be evidence based and reflecting current national recommendations.

Summary sheet

Positive Impacts (note the groups affected)	**Negative Impacts (Note the groups affected)**
This will positively affect all groups of people including staff who will have confidence that the policy reflects current recommendations in practice. It supports the needs of all patients from all backgrounds and promotes access to patient information leaflets in multiples languages and formats to ensure informed consent for all.	Nil noted
Additional Information and Evidence Required Nil	
Recommendations This policy supports equality and diversity needs and is recommended to be progressed to the next stage in ratification.	
From the outcome of the RIC, have negative impacts been identified for race or other equality groups? Has a full EQIA process been recommended? If not, why not? No negative impacts have been identified so full EQIA process is not recommended.	

Signature(s) of Level One Impact Assessor(s): Fiona Embleton

Date: 6th February 2024

Signature(s) of Level Two Impact Assessor(s):

Date: