

# **Guidance for the Emergency Transfer of Blood and Components with Patients between Hospitals**

**NHSBT Appropriate Use of Blood Group &**

**National Laboratory Managers' Group of  
the National Blood Transfusion Committee**

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**Disclaimer**

While the advice and information in these recommendations is believed to be true and accurate, neither the authors nor the two groups (NHSBT Appropriate Use of Blood Group and the National Transfusion Laboratory Managers' Group) accept any legal responsibility for the content of these recommendations.

## Introduction

This is a review of the previously issued guidance, the review has been prompted due to the culture of ongoing change in medical practice, the organisation of health services and legal requirements, including:

- Improvements in the transfusion process, especially in documentation and patient identification (Patient Blood Management programme).
- Changes in laboratory organisations in a response to the NHSi initiative for the centralization of pathology services which may impact on the requirements of the clinical service and change the need to transport blood components.

The aim of this guidance is to standardise procedures for the emergency *ad hoc* transfer of blood and components between hospitals served by the NHS Blood and Transplant (NHSBT) and the Welsh Blood Service. Although it is intended as a guide that encompasses practices from all users, hospitals are encouraged, where appropriate, to add local protocols to the policy to complement the practices outlined in this document.

Blood and components are referred to in this document as blood unless specific components are discussed.

The committees concluded that a compelling need to transfer blood would be rare in modern practice though hospitals must undertake risk assessments to guide local practice. Two scenarios were considered to be an exception:

1. Blood allocated to a specific patient who was actively bleeding and in whom the risk of transfer to a specialist unit was considered appropriate. Such patients would require a medical and/or nursing escort.
2. Patients being transferred who have special transfusion requirements such as complex phenotyped blood, irradiated blood or HLA matched platelets. However these blood components should be transferred directly to the laboratory in the receiving hospital

This document does **not** cover:

- Agreed transfer of stock between hospital transfusion laboratories for optimal management of blood stocks.
- Transfer of blood for a specific patient to a blood fridge located in a satellite hospital/unit of the dispatching hospital.
- Contingency planning for a blood shortage.

## Purpose

The purpose of this guideline is to help ensure the following:

1. Blood is only transferred in the appropriate clinical scenario.
2. Blood is transported and packaged in accordance with validated procedures to ensure product quality and safety.
3. Transport of blood is optimally managed by transfer from one transfusion laboratory to another transfusion laboratory
4. The transfer of blood is correctly documented to maintain proof of the cold chain of blood storage.
5. Vein-to-vein traceability is maintained.
6. The roles and responsibility of the dispatching and receiving hospitals are clearly defined.
7. Wastage of blood is minimised.

## Clinical Guidelines

The following information has been provided by the surgical and anaesthetic representatives on the NHSBT Appropriate Use of Blood Group.

### Changes in practice

There are several changes in clinical practice greatly reducing the need to transfuse patients during transfer.

Experience within vascular surgery networks has shown that survival following emergency surgery is improved by the transfer of patients to specialised units. The provision of specialist surgeons, anaesthetists, theatre teams and intensive care facilities outweigh early emergency surgery in peripheral hospitals<sup>1</sup>.

Recent changes in our knowledge of resuscitation favour permissive hypotension and rapid transfer, usually without medically qualified escorts. Blood transfusion is rarely used during transfer. Clear fluids are administered sparingly to maintain consciousness or a palpable radial pulse regardless of the blood pressure, which is kept low to prevent further bleeding<sup>2</sup>.

Blood transfusion and component therapy administered in the dispatching hospital aims to render the patient stable enough for transfer. Surgical "first aid" such as packing liver lacerations has the same aim; if the patient remains unstable, they are usually unfit for transfer and have a very low chance of survival<sup>3</sup>.

Historically, the purpose of transferring blood with the patient was to provide an immediate supply of blood to use during the definitive operation in the receiving hospital. Advances in laboratory practice have made this unnecessary, except in rare situations.

### Results of East of England Regional Transfusion Committee Audit 2017

Audit in 2017 in the East of England RTC showed a reduction in the number of units transferred with patients compared to the same time period in 2013. Although there were still 82 units of red cells and 10 FFP transferred between hospitals. Only 50% of transfers was for the recommended 2 units of red cells with 10% of transfers being for 5 or 6 units. They also reported anecdotal evidence that units were being transferred without the involvement of the transfusion laboratories.

### Results of London and South East Regional Transfusion Committee Audit

Audit in the London and SE has shown that during a three month period, 425 units of blood were transferred in 113 patient episodes. Over 75% were not used for the intended patient and of these 56% were wasted, largely due to inadequate packaging or temperature control. Only 2.7% patients were transfused *en route*. Audit carried out from January-April 2008, so although a little old they are still relevant.

### Results of North East Regional Transfusion Committee Audit

In terms of the fate of the units transferred only 5% were wasted. However, only 46% were transfused to the transferred patient with the balance of 49% being able to have the cold chain verified and subsequently accepted into hospital stock. Hospitals have reported that they would then need to re-crossmatch the units to allow issue by their own IT systems. Audit carried out from July 2011 to July 2012.

1. [www.vascularsociety.org.uk/.../33-the-provision-of-emergency-vascular-services-2007.html](http://www.vascularsociety.org.uk/.../33-the-provision-of-emergency-vascular-services-2007.html)

2. Current trends in resuscitation strategy for the multiply injured patient Stahel PF, Smith WR, Moore EE. Injury. 2009;40 Suppl 4:S27-35.

3. Exsanguination in trauma: A review of diagnostics and treatment options. Geeraedts LM, Kaasjager HA, van Vugt AB, Frolke JP. Injury 2009 Jan;40(1):11-20.

## Avoiding transfer of blood with patients

The receiving hospital is, by definition, a specialist centre with up-to-date transfusion laboratory facilities. The transfusion laboratory in the dispatching hospital may have tested the patient sample and crossmatched blood. The blood group and results of antibody screening can be communicated by to the receiving hospital laboratory, to provide advance warning of

Preparation for anaesthesia and surgery in the receiving hospital provides a window of time for registration of the patient, fitting of identification wristbands and the provision of a blood sample for post transfer group and save and cross-match.

If blood transfusion is required urgently in the receiving hospital, group O or type specific blood according to local policy can be issued immediately and transfused.

It is recommended that provision of facilities for cell salvage (equipment and trained personnel) should be considered in tertiary centres receiving such patients and, where appropriate, should be set up ready to receive the patient.

## **Recommendations**

**Transfer of blood or components with a patient is required in exceptional circumstances only. This should be reserved for patients who will need transfusing during the journey. Two units of blood should be sufficient.**

**The transfusion laboratory should coordinate the transfer of blood and ideally this will occur from laboratory to laboratory. Blood should never be transferred without the knowledge of the transfusion laboratory.**

## **Principles of laboratory guidance for the transfer of blood**

The cold chain is a temperature-controlled supply chain of storage and distribution activities which maintain a given temperature range. Insulated boxes containing cool packs, or other validated packaging materials, ensure that the optimum temperature is maintained for transport. Records are kept of transport of blood and components in order to maintain an audit trail of the cold chain and to ensure the trust remains compliant with the Blood Quality and Safety Regulations (2005). The fate of individual units must be recorded by both the receiving and dispatching hospitals.

Not all hospitals routinely transfer blood and may not have validated the packing of transport boxes. These hospitals should follow the appropriate local transfusion centre policy for packing and ensure they have the appropriate packaging and transport materials within the laboratory for use in the emergency situation.

Transfusion laboratories that transport blood routinely to other hospitals, clinics and hospices should use their own validated method (in accordance with the BSQR 2005) to pack the blood for transportation for transfer.

Not all transfusion laboratories pack blood for transport in exactly the same way. Even if the dispatching hospital's method is different to that of the receiving hospital, the information on the received paperwork should be accepted as valid i.e. the expiry time of the cold chain of the packaged blood and the intact seal on the transport box.

## Communication

- The communication to the receiving hospital transfusion laboratory that blood is being transferred is a critical step and this alone will prevent many units having to be discarded.
- The communication with the receiving laboratory should ideally be from the sending hospital laboratory as this ensures that they are involved in the process.
- However it is recognized that some hospital laboratories are not manned out of routine hours in which case local arrangements need to be in place for communicating with the receiving hospital laboratory and also to ensure that the blood is suitably packed for transfer.

## Procedure for the dispatching hospital

Prior to packaging the blood, ensure suitable transport arrangements are in place.

### ***Blood Packaging and Final Documentation***

1. Locate the blood to be sent.
2. Complete a transfer document (Appendix 1). The 'component detail' section can be computer generated and attached. Make a copy of this documentation for your records and send a copy to the receiving hospital. Return the blood to suitable storage conditions whilst preparing the transport box, packing materials and labels.  
*Blood which may have been difficult to source should not be transferred with the patient as the figures cited show that a large proportion of this would be wasted – it is preferable to send the blood by taxi/courier directly to the receiving transfusion laboratory.*
3. Immediately before sending, place the blood in the appropriate transport box validated for the number of units being transferred. Follow the local validated procedure for packaging and transport.
4. Place all the appropriate documentation in the transport box, retaining a copy of the transfer document.
5. Replace the transport box lid. Ensure label details are complete and label attached to transport box (Appendix 2).
6. The transport box should be sealed by a method (e.g. cable tie) that alerts the user/laboratory, if removed or broken, that the cold chain has been broken.
7. Staff accompanying patients with transport boxes should be advised regarding the temperature control of blood and given a copy of Appendices 4 and 5.

### ***Dispatch of Blood Components***

1. On dispatch of the blood, immediately telephone the transfusion laboratory of the receiving hospital to confirm dispatch and to check that their email contact.
2. Confirm the following
  - Dispatching transfusion laboratory contact details.
  - Time of dispatch.
  - Mode of transport (courier or ambulance with the patient).
  - Estimated time of arrival.
  - Number and type of units.
  - Patient identification details and the ward or department (if known) expected to

- receive the patient.
- Patient's blood group, any antibodies, special requirements and recent transfusion history.
  - Complete and email the Blood Component Transfer form (Appendix 1). This is to communicate any special transfusion requirements.
3. Send a copy of the transfer document (Appendix 2) to the receiving transfusion laboratory.

4. It is necessary for the dispatching hospital to record the final fate of the units. This may be:
  - Transfused to the patient.
  - Wasted due to breach of cold chain.
  - Not transfused but put into receiving hospital's stock.
5. The receiving hospital must ensure that they can make this information available. The receiving hospital should record receipt, arrival time and final designation of the blood on the hospital LIMS or a paper record if the LIMS system does not allow for this. The dispatching hospital must provide the receiving hospital with the correct information

### **Procedure for the receiving hospital**

The blood should be sent to the transfusion laboratory as soon as it arrives at the receiving hospital. The clinical area where the patient is being transferred to should be aware that they are required to send the transport box immediately on arrival to the transfusion laboratory to ensure proper process.

1. Blood samples must be taken from the patient immediately and sent to the blood transfusion laboratory for testing.

Local policies should be in place to ensure received blood is transferred to suitable storage facilities as soon as possible, taking note of the expiry time displayed on the transport box.

2. On arrival, transfusion laboratory staff should check the integrity of the transport box, complete the transfer documentation and check the blood is still under correct storage conditions.
3. Blood received must be entered on the LIMS and the fate should be recorded as follows:
  - Transfused to the patient
  - Wasted due to breach of cold chain.
  - Not transfused but entered into stock
4. The sending hospital remains responsible for fating units transfused in transit. This may mean confirming transfusion in transit with the relevant ambulance service.
5. For blood transferred with a patient, the receiving transfusion laboratory must inform the dispatching transfusion laboratory (preferably by email of the fate of the units to enable update of records as above. This ensures the correct fate of the units is recorded at both hospitals.
6. The receiving transfusion laboratory should return the transit box to the dispatching laboratory via NHSBT.

## **Wristbands**

Wristbands must be used to identify the patient during transfer. Most receiving hospitals will re-register the patient and issue a second set of wristbands. Communication between the clinical area and the transfusion laboratory is necessary to ensure that patient identification is managed in a safe and appropriate manner. A policy should be in place to minimise the risk of multiple hospital numbers and wherever possible the NHS number should be incorporated.

The original wristband must remain in place on the patient until the transferred blood has been transfused or returned to stock in the receiving hospital and the final fate of the transferred units recorded.

## **Confirmation of Traceability**

The traceability of the blood products remains a priority even if the unit has been transferred to another location.

While it is not totally clear where the full legal responsibility for ensuring traceability lies, it is best practice to ensure all blood products which have been within your organization are fully compliant. This will mean that communication will be required between the sending and receiving organisations to confirm what happened to the transferred units.

## **Recommendations:**

Units transfused to the patient they were transferred with should be recorded in the sending organization as transfused. It may be necessary for the receiving hospital to confirm in writing that the units were transfused

Units which were transferred and were not suitable for use on arrival –should be recorded as discarded in the sending organization. Again, it may be necessary for the receiving hospital to confirm in writing that the units were discarded.

Units which were not transfused to the patient but were received suitable for reuse and are taken into the stock of the receiving hospital. The receiving hospital should confirm to the sending hospital that the units were received but not transfused and have been taken into their own stock. The sending hospital should have a 'fate' in their LIMS which reflects this situation. Once the sending hospital have recorded the units as in stock in a separate organization, the responsibility for the final fate of the unit transfers to the receiving hospital. There is no need for the receiving hospital to confirm the patient details who received the units to the sending hospital as this would be a breach of patient confidentiality.

## **Original Writing Group**

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**NHSBT Appropriate Use of Blood Group & National  
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Transfusion Committee**

## **APPENDICES**

**The appendices are available as Word documents so  
that hospitals can adapt for local use but the core  
information should be retained**

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**Guidance for the Emergency Transfer of Blood with Patients APPENDIX 1  
BLOOD and BLOOD COMPONENT TRANSFER FORM**

This form must accompany units transferred with a patient between the Hospitals documented.

Blood and blood components must only be transported using a validated container and in strict accordance with a locally agreed method which complies with the Blood Safety & Quality Regulations (2005)

<b>PATIENT NAME</b>	<b>NHS Number/MRN</b>	<b>DOB enter as: dd/mm/yy</b>	<b>GENDER</b>

**TYPE OF UNITS**

Blood	FFP	PLTS	
<b>D</b>	<b>D</b>	<b>D</b>	Special requirements: Irradiated <input type="checkbox"/> D HLA Matched <input type="checkbox"/> D Blood Group: _____ Antibodies: _____

**Enter donation number of all units transferred (Blood, FFP, Platelets) or attach details to form**

<b>UNIT 1</b>	<b>UNIT 2</b>

.....HOSPITAL NHS TRUST	<b>DISPATCHING HOSPITAL</b>
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*I confirm that the components listed above have been stored in accordance with National guidelines before issue and that the recipient site is aware of their obligation to transport, store, use and maintain fully traceability in accordance with BSQR (2005)*

*I confirm that the components listed above will be transported in a correctly packed, validated container and must arrive within the validated time as documented on the label.*

**Date Packed:** \_\_\_\_\_ **Time packed:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

.....HOSPITAL NHS TRUST	<b>RECEIVING HOSPITAL</b>
-------------------------	---------------------------

The box was received sealed	<b>D</b>
The box had been opened	<b>D</b>

*I confirm that the components received were appropriately transported and will be stored in accordance with the requirements of BSQR (2005)*

**Date received:** \_\_\_\_\_ **Time received:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

FINAL DISPOSITION		
	UNIT 1	UNIT 2
Transfused en-route	<b>D</b>	<b>D</b>
Wasted	<b>D</b>	<b>D</b>
Stock	<b>D</b>	<b>D</b>
Signature	(name/date/time/job role) ..... .....	

**Traceability documentation must be sent to your Transfusion Laboratory.**

**RECEIVING HOSPITAL RETURN THIS COMPLETED FORM TO THE DISPATCHING HOSPITAL**

**Dispatching Hospital contact details:**  
 Transfusion Laboratory Email: \_\_\_\_\_  
 Transfusion Laboratory Direct: \_\_\_\_\_ Out of Hours: \_\_\_\_\_  
 Hospital Switchboard : \_\_\_\_\_

Guidance for the Emergency Transfer of Blood with Patients **APPENDIX 2: Label for Transport Box**  
**To:** *Insert name and address of receiving hospital*

**This box must be taken immediately on arrival to the Hospital Transfusion Laboratory unless required for Immediate transfusion. If blood is transfused, send this completed form to your Hospital Transfusion Laboratory**

**Do NOT open unless immediate transfusion of the patient is indicated.**  
 Opening this box unnecessarily will render the contents un-transfusable and will be wasted

**This transport box has been validated for the storage of blood components.**  
**The contents of this box will be suitable for transfusion until**  
HH:MM **hours**

**Transport box opened/seal broken at: .....**

**BLOOD**  
**URGENT**  
**For**  
**Immediate**  
**Delivery**

**The Blood / Components contained in this box were issued from the Transfusion Laboratory at ..... Hospital.**

**If found please telephone ..... immediately**

In compliance with BSQR 2005, it is confirmed that the contents of this box have been stored securely in accordance with Guidelines for the Blood Transfusion Services.

<b>Packed by:</b> Signature of BMS  PRINT NAME  <b>Date:</b> <b>Time:</b>	<b>Delivered by:</b> Signature of Porter/Driver/Nurse/Doctor  PRINT NAME  <b>Date:</b> <b>Time:</b>																
<b>Delivered to:</b> Signature  PRINT NAME and DESIGNATION  <b>Date:</b> <b>Time:</b>	<b>Date and time removed from transport box:</b> Give <u>exact</u> time HH:MM <hr/> Unit 1: <table style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table> Date transfused:                      DD/MM/YYYY Time started:                              HH:MM																
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## **Blood Transfer Advice for Clinical Staff**

Please ensure the following sheet is issued to the member of clinical staff responsible for the transfer box when blood components are being transferred with a patient.

### **Blood Transfer Advice for Staff**

*The blood and blood components have been packed in this transfer box following blood transfusion laboratory guidelines.*

#### **PLEASE ENSURE THE BOX REMAINS SEALED UNTIL IMMEDIATE TRANSFUSION OF THE PATIENT IS INDICATED**

##### **Before transferring the patient:**

- Check to make sure the boxed component is for the patient you are accompanying
  
- Please ensure the patient has a wristband in situ stating the patient's hospital number (from the transferring hospital), date of birth and name (if known)
  
- If a decision is made NOT to transfer the blood components with the patient or to transfuse the patient onsite before transfer, contact the transfusion laboratory and return the transfer box immediately

##### **During transfer:**

- Blood components are suitable for transfusion until the time indicated on the transfer document provided the box remains sealed.
  
- Once opened temperature control is lost so transfusion of all the units must be completed **within 4 hours of opening the box** or the units may have to be discarded - the receiving laboratory will make this decision.
  
- If blood components are required during the patient's journey or on immediate arrival at the receiving hospital, please ensure they are checked and transfused in accordance with local policy.
  
- Please ensure the lid **REMAINS** on the box at all times. If blood components are removed for transfusion, please replace the lid **IMMEDIATELY!**

##### **On arrival:**

- When the patient arrives in the receiving clinical area, please ensure the blood transfer box is handed over to the **transfusion laboratory staff** immediately.
  
- Please state how many blood components were transfused during the journey and any adverse events (if occurred).

**Guidance for the Emergency Transfer of Blood with Patients APPENDIX 4**

