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Guidelines on hospital blood bank documentation and procedures

THE BRITISH SOCIETY FOR HAEMATOLOGY
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This document has been prepared by the Blood Transfusion Task Force under the auspices of the British Committee for Standards in Haematology. Its purpose is to define minimum requirements for documentation in relation to blood transfusion. No attempt is made to prescribe the format in which the information is stored as experience has shown a very wide variety of record-keeping systems in use in the UK. The principles on which the Task Force has based its recommendations are as follows.

1. The patient identification must be unique.
2. There must be a clear link between each stage in the procedure from the collection of the sample to the connection of the unit for transfusion.
3. It must be possible to trace every stage, the time at which it occurred and the individuals who were involved. Standard operating procedures must be followed in both clinical and laboratory areas.

The Task Force strongly recommends, as nursing staff are involved in blood transfusion arrangements, that a local joint working party be established to talk through and agree procedures so that there is total agreement of all staff involved in direct patient care.

Generation of the request

A request to the blood transfusion laboratory for grouping and/or compatibility testing should be made on a form which contains the following information:

(i) the patient's full surname, correctly spelt,
(ii) forename(s),

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(iii) date of birth (a year of birth or age is not sufficient),
(iv) hospital number,
(v) sex.

All this information is essential, and refusal to accept specimens and/or request forms should be considered where the information required to identify the individual uniquely is missing.

In situations where a unique number is not available, the patient's address may be useful, and space should be made available for its inclusion. Alternatively, where the patient cannot be identified, an accident and emergency department unique number may be used.

Ideally, the request form should contain the destination of the report and information about the previous transfusion and obstetric history of the patient. This is usually obtained by a series of questions and simple answers. Responsibility for completion of the transfusion request form must be accepted by the medical officer. The request form, together with a sample of blood labelled with *the same complete patient identification as on the request form*, is sent to the laboratory.

A special problem of identification may exist in relation to samples from mother and newborn baby received separately. Attention is drawn to this problem but it is felt that local requirements vary so much that guidelines cannot be given other than that an agreed policy for identifying specimens from mother and baby must be documented.

Because transcription is the commonest source of error in relation to blood transfusion, it is common practice in a number of blood transfusion laboratories to make use of three- or four-part no carbon required (NCR) stationery so that the top copy of the transfusion request becomes the blood group report and the subsequent copies are used for identifying compatible blood and for serving as the laboratory master record. This may not be necessary in departments where reports are computer generated. For example see Appendix, Figure 1.

The layout of the information on the form may vary but it is recommended that the patient identification and the destination of the report should be contained within a box and that the patient information should appear in a regular pattern which is repeated throughout the patient's record.

Collection of the patient sample

Many hospitals insist that not only is the request form signed by a member of the medical staff, but the specimen is also collected by the same member of the medical staff.

In the view of the Task Force, a properly constituted team of phlebotomists who have been properly trained, who have signed an undertaking which makes their responsibilities absolutely clear, and who are responsible to a member of the consultant staff of the hospital, may be trusted with the collection of blood for

transfusion. Attention is drawn to the guidelines on phlebotomists drawn up by the Royal College of Pathologists (1989). It is emphasized that the decision whether or not they should be used must be a local one.

The following practices are recommended.

1. Whenever possible the patient should be asked to identify himself/herself verbally, and the information given checked against the information on the identification bracelet or indelible skin marking.
2. The collection of the blood, dispersal into containers and labelling of the containers must be carried out as one continuous, uninterrupted event involving one patient only. Addressograph labels should not be used on sample containers. If local practice dictates that dimensions and anticoagulant content of tubes are critical, this should be stated in the purchasing specification.
3. The request form or the sample container or both should be signed by the person collecting the blood.
4. It should be mandatory in the case of unconscious patients that the request be signed and the sample taken by the same medical officer. In the case of unconscious casualties and for major disasters a unique numbering and labelling system must be available in the accident and emergency department (Wood *et al.* 1990).

Supply of blood from the transfusion centre

Blood products are received from the Transfusion Centre having been selected, grouped and screened. The blood pack label contains the following essential information:

(i) the ABO and Rh (D) group,
(ii) the date of expiry,
(iii) a unique number,
(iv) a product identification.

Some or all of this information may be in bar code format for direct computer input.

It is essential that a record is available which shows the details of the products received and the eventual fate of each. This may be kept as a register which is also used as a record of the blood issued.

Each laboratory should record:

(i) the date on which the unit was received,
(ii) the ABO and Rh (D) group,
(iii) the date of expiry,
(iv) the unique number,
(v) the patient(s) to whom it was allocated,
(vi) the patient to whom it was given,
(vii) the date on which it was given,

(viii) details of manipulation prior to transfusion (e.g. laboratory filtration or washing),
(ix) a record of its alternative disposal.

This information is essential but need not be kept in one place provided that the history of an individual unit can be traced. (See also *Guidelines on Hospital Blood Bank Computing* (1986).)

Grouping and compatibility testing within the laboratory

It is essential that Standard Operating Procedures are followed.

When the blood sample is received in the blood transfusion laboratory, if the serum is separated from the cells, this procedure must be treated with great respect. The sample container, when ready for separation, should be placed in a numbered rack, and a second container, identically labelled and dated, placed in the rack beside it. Serum is then transferred and the labels matched. These containers should be kept together until the grouping procedure is carried out.

Although it is desirable that grouping should be carried out in batches and compatibility testing should be carried out as a routine exercise, inevitably a percentage of the work is of an emergency nature. It is important that the documentation should allow for these two often different procedures. Ideally, all groupings on patients' blood will be put up in batches with appropriate controls. It is good practice in manual grouping that the cell group and the serum group should be determined by different members of staff and the results collated afterwards. It is necessary that an adequate record of the grouping procedures should be retained and this may conveniently be done by using the worksheet as a permanent document. This will prevent transcription errors.

An alternative approach is to keep a book in which all groups carried out are entered. In either case the worksheet should be retained and should be identified by:

(i) the date,
(ii) the time of day,
(iii) the name of the person carrying out the work.

If the results are interpreted by someone other than the person performing the test, his or her name should also be recorded. Working documents should be retained for 11 years to meet the requirements of the Consumer Protection Act (1987). There is evidence that diseases with long incubation periods may be transmitted by blood products. It is essential to be able to trace such donors to remove them from the donor panel.

There should be a record of source and batch numbers of reagents used.

Emergency compatibility testing may require that an emergency group is carried out. This may have to be performed by an alternative technique at the time that the crossmatch is carried out, possibly by the same person. Details of

this emergency group must be recorded. This may either be done in a book kept for that purpose or alternatively the information may be recorded on the blood transfusion request/record form.

Compatibility testing

Information concerning the compatibility testing of blood for a particular patient must be recorded. It may be recorded on a special compatibility testing sheet which contains information about compatibility testing for several patients at the same time. Alternatively, or in addition, it may be recorded on a blood transfusion compatibility form either as part of an integral blood transfusion request form or as a report issued by the laboratory. Whatever type of documentation is used the following information must be recorded:

(i) the date and time that the procedure was carried out,
(ii) the person who carried it out,
(iii) the identification of the patient,
(iv) the ABO and Rh (D) group of the patient and the donor blood,
(v) the unique donation number,
(vi) the result of the compatibility testing by each technique used.

This last item of information need not form part of the compatibility report.

Arrangements should ensure that the compatibility report and the report of the blood group, if separate, become available to the clinical staff in charge of the patient as quickly as possible. This means either a rapid courier service to the ward or alternatively an arrangement whereby these reports are made available when the first unit of blood for that patient is collected.

Collection of compatibility tested blood for transfusion

Blood for transfusion must be stored in specially designated refrigerators, to the specifications as described in the British Standard 4376 (1990). These refrigerators should not be used for any other purpose; should be monitored by use of chart recorders and should have adequate alarm systems. Wherever possible, separate refrigerators, clearly labelled, should be used for stock blood and compatibility tested blood. Whether in the laboratory, operating theatre or clinical area, they must be under the supervision of the consultant in charge of the blood transfusion laboratory, who will arrange regular checks and clearances.

The person collecting the unit should come equipped with documentation which specifies the patient's details. This may be the patient's case record, part of the record containing full identification or a specially designed document (see Appendix, Figure 2).

Blood may be issued on demand by laboratory staff or may be collected directly from the blood refrigerator by designated staff. At the moment of

collection the person collecting the blood should satisfy him/herself that identification details relating to the patient and to the unit of blood agree. When blood is issued by the laboratory this will be a two-way exercise between the member of staff issuing the unit and the person collecting it. Where the pack is collected by clinical staff without laboratory intervention the same checking process must apply.

There must be a written record retained by the blood transfusion laboratory of:

(i) identification of the patient for whom blood is collected,
(ii) unique donation number of pack collected,
(iii) time of collection,
(iv) name of person collecting.

The compatibility label

This label should be firmly attached to the unit of blood. It provides information linking the patient's identification to the unit of blood. It should carry the following items:

(i) surname,
(ii) forename(s),
(iii) date of birth,
(iv) hospital number,
(v) patient's group,
(vi) unique donor number of pack,
(vii) the date that the blood is required.

Uncrossmatched blood

Circumstances arise when it may be necessary or appropriate to issue blood which has not been compatibility tested. The ABO group of units used in this way must be confirmed before issue and a warning label should be attached to the pack.

Transfusion of different blood group

In situations where this is required a special 'WARNING' label should be used and the clinical staff contacted by telephone.

Procedures in clinical areas

It is recommended that procedures for the administration of blood products should be agreed between medical and nursing staff and should be implemented as

part of a nursing code of practice. The checking procedure for each pack of blood product must be laid down in detail.

The following points are important.

1. The pack should be checked at the patient by two people, one of whom is either a registered general nurse or a medical officer. In operating theatres the operating department assistant may take part in the checking procedure with the medical officer. The patient should be asked to identify him/herself unless unconscious or anaesthetized and the information on the following compared:

   (i) the patient's identification bracelet or skin marking,
   (ii) the compatibility report,
   (iii) the compatibility label on the pack of blood.

2. The ABO and Rh (D) group of the pack should be checked against the blood group report in the case record and the compatibility label on the pack itself.
3. The blood should be examined for any signs of discolouration or haemolysis and the unit should then be tested for leaks by squeezing firmly.
4. It should be checked that the expiry date on the unit of blood has not been exceeded.

As stated above, each unit of blood transfused must be recorded in the patient's notes on a special intravenous administration form (Appendix, Figure 3) and in the continuation notes. This is important for medical audit.

On this intravenous administration form should be recorded:

(i) the patient identification details,
(ii) the day and the time at which the unit was connected,
(iii) the signature of the person connecting it,
(iv) the signature of the person checking it.

At the end of the transfusion the amount given is recorded on the fluid balance chart and in the continuation notes, and the time at which it was disconnected is recorded.

This document must form a permanent part of the patient record. After disconnection, the plastic pack which contained the unit of blood must be retained for at least 48 h before being discarded.

If during this time there is any indication that a transfusion reaction has taken place it is then available to the blood transfusion laboratory for investigation.

Blood transfusion reactions

The recording of blood transfusion reactions is dependent on the level of awareness of the staff looking after the patient but all staff should be encouraged to report incidents which they think may be related to the infusion of blood products. It is advisable that a set of instructions relating to blood transfusion reactions should be available at ward level. This would define the degrees of

severity of these restrictions, offer a list of symptoms and signs to be recorded easily and offer advice on the immediate action to be taken by ward staff. Some hospitals utilize a 'Transfusion reaction investigation' form (Appendix, Figure 4).

Blood products

All products of human origin must be accounted for. These include platelets, gammaglobulin, human albumin solutions, factor VIII, factor IX, cryoprecipitate, fresh frozen plasma, etc.

Some of these (platelets, cryoprecipitate and fresh frozen plasma) have a unique donation number; others have a common batch number.

It is essential that the use of all blood products is fully documented and that all material issued can be traced from receipt to the eventual utilization.

A recording system similar to that described for blood for transfusion is recommended.

The use of these materials should be recorded by patient, date of administration (time where appropriate) and batch number.

References

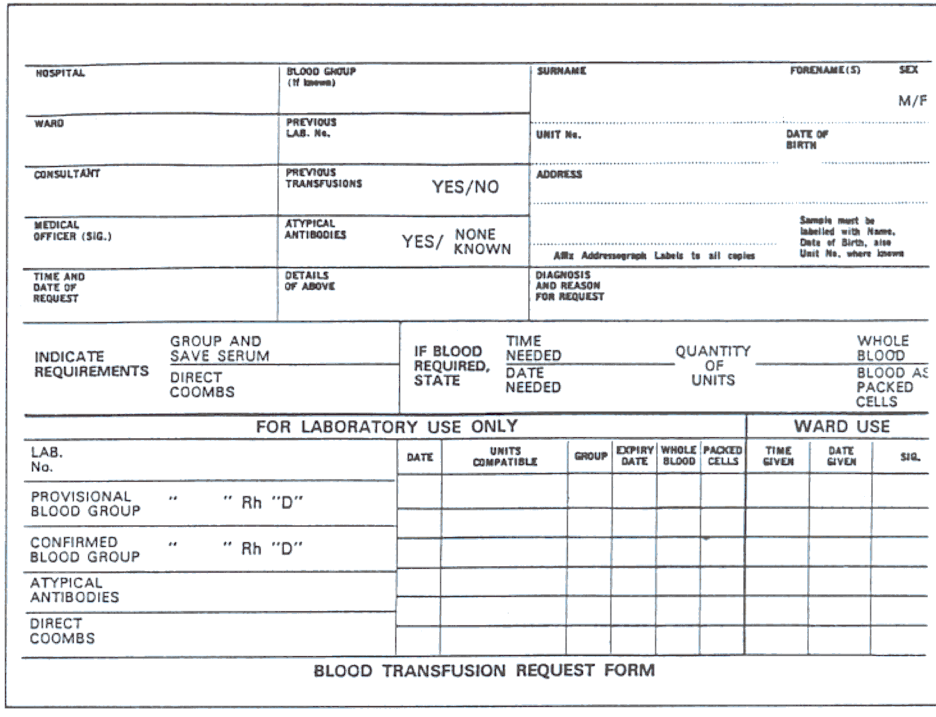
BRITISH STANDARD 4376 (1990) British Standards Institution, 2 Park Street, London, W1A 2BS

ROYAL COLLEGE OF PATHOLOGISTS (1989) Paper on Training of Phlebotomists. Available from The College Secretary, The Royal College of Pathologists, 2 Carlton House Terrace, London SW1Y 5AF

WOOD J.K., NOLAN S.L., BLECHER T.E., HARRIS I.M., MAYNE S., FORD V.G. & JAMES V. (1990). The M1 Kegworth aircraft disaster: experience in three hospital blood transfusion laboratories and the regional transfusion centre. *Clin. lab. Haemat.* **12**, 1–7

Appendix. Examples of hospital blood bank documents

(a)



HOSPITAL | BLOOD GROUP (If known) | SURNAME | FORENAME(S) | SEX M/F
WARD | PREVIOUS LAB. No. | UNIT No. | DATE OF BIRTH
CONSULTANT | PREVIOUS TRANSFUSIONS YES/NO | ADDRESS
MEDICAL OFFICER (SIG.) | ATYPICAL ANTIBODIES YES/ NONE KNOWN | Affix Addressograph Labels to all copies | Sample must be labelled with Name, Date of Birth, also Unit No. where known
TIME AND DATE OF REQUEST | DETAILS OF ABOVE | DIAGNOSIS AND REASON FOR REQUEST

INDICATE REQUIREMENTS: GROUP AND SAVE SERUM; DIRECT COOMBS
IF BLOOD REQUIRED, STATE: TIME NEEDED; DATE NEEDED; QUANTITY OF UNITS; WHOLE BLOOD; BLOOD AS PACKED CELLS

FOR LABORATORY USE ONLY

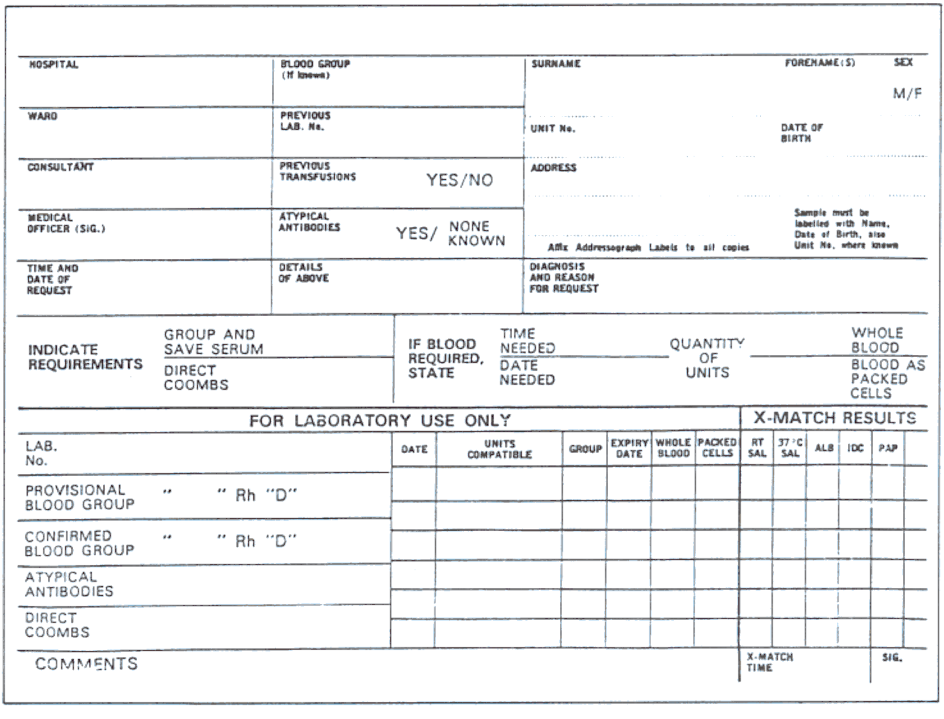
LAB. No.	DATE	UNITS COMPATIBLE	GROUP	EXPIRY DATE	WHOLE BLOOD	PACKED CELLS
PROVISIONAL BLOOD GROUP " " Rh "D"						
CONFIRMED BLOOD GROUP " " Rh "D"						
ATYPICAL ANTIBODIES						
DIRECT COOMBS						

WARD USE

TIME GIVEN	DATE GIVEN	SIG.

BLOOD TRANSFUSION REQUEST FORM

(b)



HOSPITAL | BLOOD GROUP (If known) | SURNAME | FORENAME(S) | SEX M/F
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CONSULTANT | PREVIOUS TRANSFUSIONS YES/NO | ADDRESS
MEDICAL OFFICER (SIG.) | ATYPICAL ANTIBODIES YES/ NONE KNOWN | Affix Addressograph Labels to all copies | Sample must be labelled with Name, Date of Birth, also Unit No. where known
TIME AND DATE OF REQUEST | DETAILS OF ABOVE | DIAGNOSIS AND REASON FOR REQUEST

INDICATE REQUIREMENTS: GROUP AND SAVE SERUM; DIRECT COOMBS
IF BLOOD REQUIRED, STATE: TIME NEEDED; DATE NEEDED; QUANTITY OF UNITS; WHOLE BLOOD; BLOOD AS PACKED CELLS

FOR LABORATORY USE ONLY

LAB. No.	DATE	UNITS COMPATIBLE	GROUP	EXPIRY DATE	WHOLE BLOOD	PACKED CELLS
PROVISIONAL BLOOD GROUP " " Rh "D"						
CONFIRMED BLOOD GROUP " " Rh "D"						
ATYPICAL ANTIBODIES						
DIRECT COOMBS						

X-MATCH RESULTS

RT SAL	37 °C SAL	ALB	IDC	PAP

COMMENTS | X-MATCH TIME | SIG.

Figure 1. Blood transfusion request form. (a) Top copy; (b) lower copy.

RECEIPT FOR TRANSFUSION FLUIDS

Date .....

Ward/Theatre .....

Please supply the bearer with:

..... unit(s) of whole blood ☐

● Plasma protein fraction batch numbers must be noted here:

- Packed red cells ☐
- Platelets ☐
- ● Plasma protein fraction ● ☐
- Cryoprecipitate ☐
- Factor VIII concentrate ☐
- Fibrinogen ☐
- Fresh frozen Plasma ☐
- Other ☐

(Please specify)

Patient's Details addressograph if available

Surname Forename(s)

Hospital No.

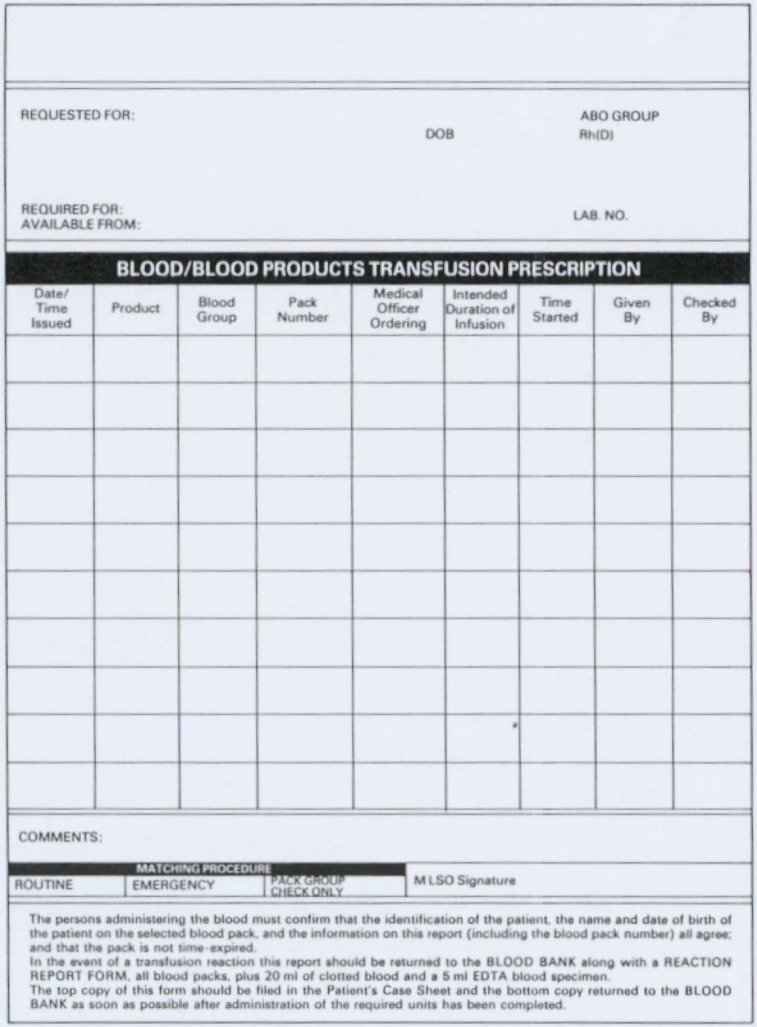
Address

Date of birth

Signed .....

(Must be signed by medical officer, SRN or SEN, not by unqualified staff)

Figure 2. Receipt for transfusion fluids.



REQUESTED FOR: DOB ABO GROUP Rh(D)

REQUIRED FOR: AVAILABLE FROM: LAB. NO.

BLOOD/BLOOD PRODUCTS TRANSFUSION PRESCRIPTION

Date/ Time Issued	Product	Blood Group	Pack Number	Medical Officer Ordering	Intended Duration of Infusion	Time Started	Given By	Checked By

COMMENTS:

MATCHING PROCEDURE

ROUTINE	EMERGENCY	PACK GROUP CHECK ONLY	M LSO Signature

The persons administering the blood must confirm that the identification of the patient, the name and date of birth of the patient on the selected blood pack, and the information on this report (including the blood pack number) all agree; and that the pack is not time-expired.
In the event of a transfusion reaction this report should be returned to the BLOOD BANK along with a REACTION REPORT FORM, all blood packs, plus 20 ml of clotted blood and a 5 ml EDTA blood specimen.
The top copy of this form should be filed in the Patient's Case Sheet and the bottom copy returned to the BLOOD BANK as soon as possible after administration of the required units has been completed.

REQUESTED FOR: DOB ABO GROUP Rh(D)

REQUIRED FOR: AVAILABLE FROM: LAB. NO.

BLOOD/BLOOD PRODUCTS TRANSFUSION PRESCRIPTION

Date/ Time Issued	Product	Blood Group	Pack Number	Medical Officer Ordering	Intended Duration of Infusion	Time Started	Given By	Checked By

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In the event of a transfusion reaction this report should be returned to the BLOOD BANK along with a REACTION REPORT FORM, all blood packs, plus 20 ml of clotted blood and a 5 ml EDTA blood specimen.
The top copy of this form should be filed in the Patient's Case Sheet and the bottom copy returned to the BLOOD BANK as soon as possible after administration of the required units has been completed.

PLEASE RETURN THIS COPY TO
THE BLOOD TRANSFUSION SERVICE
AFTER ADMINISTRATION OF BLOOD

Figure 3. Intravenous administration form.

TRANSFUSION
DEPARTMENT

CASE No.		
SURNAME		
FORENAME(S)		
[ ] Male [ ] Female	Date of Birth	
Patient's Address		
Hospital	Ward	Consultant

INVESTIGATION OF AN APPARENT BLOOD TRANSFUSION REACTION

REQUIREMENTS: NO TESTING CAN BE DONE WITHOUT THE SAMPLES

1) Donor pack causing reaction, complete with giving set.
2) 10 ml of post-transfusion clotted blood.
   Blood cultures on patient.
3) 5 ml of EDTA (sequestrene) blood.
4) First available MSU after the reaction.

TO BE FILLED IN BY MEDICAL OFFICER RESPONSIBLE FOR THE PATIENT

A. THE PATIENT

Brief synopsis of history prior to transfusions:

Previous transfusion
Reason for transfusion
Pre-transfusion Hb
Symptoms of reaction

Pyrexia ☐ Rigor ☐ Lumbar Pain ☐ Rash ☐
Hypotension ☐ Tachycardia ☐ Haemoglobinuria ☐
Vomiting ☐ Jaundice ☐ Oliguria/Anuria ☐

Volume of urine passed since reaction

Female Patients: Pregnancies: Abortions/Miscarriages:

Atypical Antibodies:

All Patients: Previous transfusion reactions:

B. THE BLOOD PACK

GROUP: Rh(D): Unit Number: Expiry Date:

Date and time taken from blood bank

Was blood warmed before infusion?

Time infusion commenced

Number of units of blood already infused through giving set

Was anything injected into the pack or giving set?

Date and time of reaction

Volume of blood infused (approximately)

Signed _____

Figure 4. Investigation of an apparent blood transfusion reaction.