

**INTEGRATED PATHOLOGY SERVICE
BLOOD TRANSFUSION DOCUMENT**

BLOOD COLLECTION WORKBOOK

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The Collection of Blood Components

Third Edition



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For your work on the 1st Edition

Introduction

The first edition of this workbook was released in 2007 in order to help staff understand the rationale behind safe practice and to prepare for competency assessment.

Feedback from hospital staff who have used the previous editions of this workbook indicate that it is comprehensive and as a result they have a greater understanding of the collection and delivery step, a critical part of the transfusion process.

As with any exercise, the more you put in the more you will get out. It is very important that you work through the book on your own, there is no harm in asking colleagues about the questions, but it is recommended that you undertake your own work. It is very important that you understand all the answers you have given, however you came across the information.

The authors have implemented and recommend a pass mark of 90%, for the reason that every aspect of the transfusion process requires thorough understanding. A chain is only as strong as its weakest link; therefore the whole process must be carried out correctly to ensure patient safety.

Legislation

In the past there has been some misunderstanding that the checking procedure for collection of blood components is of less importance than the final bedside check. This is completely incorrect; both are critical steps in the transfusion process and therefore equally important. Both require a Right Patient Right Blood check is undertaken with complete concentration.

In addition, the legislation that governs the provision of safe blood components does not extend to the clinical areas; other safety measures cover that part of the process. As someone who will be collecting blood components, you must know about and abide by the:

Blood Safety and Quality Regulations 2005

The regulations set standards for quality and safety for the collection, testing, processing, storage, and distribution of blood components.

The government appointed a 'competent authority' to be the regulators to ensure that we are abiding by the regulations, in other words 'police' this law. Since 2005 the regulator has been the Medicines and Healthcare Products Regulatory Authority (MHRA.)

The MHRA have the power to close the transfusion laboratory and therefore the hospital. So it is both for patient safety reasons and legal reasons that collecting blood components must be carried correctly on every occasion.

In order for you to comply with the regulations you must have documented evidence of up to date training and competency assessment.

Q1 Give two reasons why staff who collect blood components should be aware of the Blood Safety and Quality Regulations 2005.

Types of Blood Components / Products

It is very useful to know the difference between a blood component and a blood product.

Blood Components have been produced by the UK Blood Services from donors who come forward to give this precious gift. When issued by the Blood Service they are given a unique donation number and can be traced back to the original donor, or donors.

Blood Products have been produced by pharmaceutical companies who obtain the key ingredients from blood donors; however they pool their products into large batches. Other methods of production use scientific techniques to synthetically create the key ingredient from DNA.

Name	Component or Product	Source
Red Cells	Component	Single donor
Platelets	Component	Pooled (Multiple donors) Apheresis (Single donor)
Fresh Frozen Plasma (FFP)	Component	Single donor
Cryoprecipitate	Component	Multiple donors
Human Albumin Solution (HAS)	Product	Pool of donors
Anti D	Product	Pool of donors
Clotting Factors	Product	Pool of donors or synthetic

Table 1

Q2 Name 3 Blood Components.

3

Q3 Name 3 Blood Products.

3



Storage of Blood Components and Products

The storage of blood components is covered by the Blood Safety and Quality Regulations 2005 and the laboratory has to keep records that all these items are always stored correctly.

The lab has most items as stock, but some may have to be ordered in especially should a patient require them.

Table 2 lists the differences in storage between components and products that are held in stock in the laboratory and when the item is issued ready for collection for a patient.

Table 2

Name	Laboratory Storage	Storage for Collection
Red Cells	2 - 6°C	2 - 6°C
Platelets	20 - 24°C Agitated	20 - 24°C Agitated
FFP	- 25°C	2 - 6°C
Cryoprecipitate	- 25°C	Room Temperature
Human Albumin (HAS)	<25°C, often Refrigerated	<25°C, often Refrigerated
Anti-D	Refrigerated	Refrigerated
Clotting Factors	Refrigerated	Refrigerated

Q4 Name the legislation that controls storage conditions for blood components.

1

Q5 What is the correct storage temperature for red cells

1

Q6 List 2 requirements for the correct storage of Platelets.

2

Collection of Blood Components and Products



Right Patient Right Blood

The easiest way to summarise the vital checks that must be made when blood is collected is the phrase

‘Right Patient Right Blood’

There are 4 pieces of information to make sure it is the **Right Patient** and also 4 items to make sure it is the **Right Blood** component.

The 4 **Right Patient** information items are:

- First Name
- Surname
- Date of Birth
- Patient Identification Number

These are often called the Patient Minimum Dataset.

Documentation containing the patient minimum data set should be obtained from the clinical area before going to the blood issue area to collect the component. The component for collection should also be stated (e.g. red cells, platelets or FFP). These details must be complete **before** collection, for example on a collection slip or prescription (authorisation) chart.

The **Right Blood** information items are:

- Donation Number
- Type of Blood Component
- Expiry Date
- Blood Group (patient and blood component)

In addition to the 4 items which can be cross-referenced during the check, you should also check that the blood component appears to be in good condition. So the blood bag should not

be damaged and there should be no discolouration of the blood component either. If in doubt, please ask the laboratory for advice.



Q7 What information must you take to the lab to ensure you collect the correct blood component for the correct patient?

5

Q8 What would you do if the patient details you were given to collect a blood component did not match those attached to the blood component?

1

Documenting Collection and Return of Blood Components

It is vitally important for patient safety and for compliance with the Blood Safety and Quality Regulations 2005 that there is a clear record of when a blood component is collected and who collected it.



This ensures that there is an audit trail from when the component left controlled storage conditions to when the transfusion was started. It may also be that the blood component leaves the main blood issue fridge and is delivered to a satellite blood fridge (a laboratory controlled blood fridge located

elsewhere, maybe in a different hospital).

If a blood component is collected and the clinical staff are not immediately able to start the transfusion, they will ask you to return the component back to the controlled storage conditions.

As long as the blood component has not been out of controlled storage for more than 30 minutes and the time and date it was returned is clearly documented (follow your own hospital procedure) it can be placed back in the storage by trained staff.

If a blood component was collected and then returned within 30 minutes with documented proof and the patient no longer needs it, it can be returned to stock and re-issued to another patient, reducing blood wastage.

If there is no documented proof the blood component cannot be returned to stock and will have to be discarded. Wastage of any blood component costs money, and even more importantly does not demonstrate appreciation of the donor's precious gift.

Documenting collection, and if necessary return, of a blood component is known as maintaining the **cold chain**.

For those healthcare providers that use a paper based document system, it is vitally important that all staff who make entries on these records write legibly and neatly. This demonstrates an understanding of the importance of the process, and when examined gives the impression that great care was taken. Sloppy and illegible entries make it difficult to prove your practice is correct and gives a very poor impression especially when examined by MHRA inspectors.

Q9 Give two reasons why both collection and return of blood components must be documented (or electronically recorded)

2

Q10 Give two reasons why handwritten entries on paper records must be legible and neat.

2

Transportation of Blood Components and Products

Just as blood components must be kept safe in storage and whilst they are being transfused, they need to be kept safe in transit too.

Most healthcare providers use some sort of container in order to keep blood components safe on their journey to the clinical area. This may be on the same site, or the blood components may be transported to another clinical site.

For on-site transportation of the blood component there is no need to make provision to keep the blood component cool, so a simple sealable box or blood transit bag is used.

For off-site transportation of red cells the Laboratory staff will pack the storage box with cold packs, which can keep them at 2- 6°C for at least 3 hours.

There are several advantages to transporting blood components in a sealed container including:



- Patient's Confidential Information is hidden from view
- The transport devices give a professional look
- Patients, Visitors and Relatives cannot see what is being carried
- If the container is dropped, any spill is contained
- Protects the blood components from infectious contaminants
- Makes it easier to carry

Q11 Give two reasons why it is recommended to transport blood components in a sealable container.

2

Delivery of Blood Components

Delivery of blood components includes the transportation and then formal handover to a qualified member of staff in the clinical area. The blood component is then formally their responsibility.

Blood components should either be in correct lab storage, or they should be in the clinical area being safely transfused to patients. Ideally there should be no in between but of course the blood component has to be transported and delivered.

There is a strict rule that the blood component should be collected, transported, delivered and after final bedside check transfusion commenced within 30 minutes. After 30 minutes the blood component cannot be reclaimed back into stock and given to another patient.

The other reasons for commencing the transfusion within 30 minutes are that clinical areas are very busy and hectic environments. Having a blood component waiting on a desk or treatment room bench is simply not safe; there are too many environmental hazards. For example the blood component may be exposed to a heat source such as a radiator, a lamp or exposed to sunlight near a window. This could damage the blood component which if transfused could then have potentially serious complications and could even be fatal. The strict conditions for blood storage and transportation are also designed to reduce the risk of bacterial growth within the component.

Q12 Give two reasons why after delivery of the blood component the transfusion should be started as soon as possible and not left waiting.

2

Electronic Blood Tracking Systems

Many Healthcare Providers use electronic tracking systems, some only cover the storage and collection of blood components; these are known as 'Fridge to Fridge Tracking' systems.

Some are able to cover the administration of the blood component as well; these are often called 'Vein to Vein Tracking' systems.

It is likely that in time most Healthcare Providers will adopt such systems.

A big advantage of these systems is that they offer real time recording of where a blood component is through the whole transfusion process. They also only allow staff on the system with up to date training to collect and administer the blood component.

Disadvantages include that they are still open to abuse, e.g. staff sharing ID cards. They may also mean that staff become complacent and rely on the electronic system to say whether or not the "right patient right blood" checks are correct. Electronic systems are only as accurate as the humans who enter data onto them in the first place.

The authors' view is that these systems on the whole offer more advantages than disadvantages. However when staff are trained to use them, they should be equally aware that they should still use their own eyes and be happy themselves that everything is correct before continuing with that part of the process.

Q13 Give two advantages of an electronic tracking system.

2

Q14 Give two potential disadvantages of using an electronic tracking system.

2

Emergency Blood Transfusions

Sometimes a patient may have a very urgent need for transfusion. It may be a new patient arriving in the emergency department or a patient who is already in hospital whose condition suddenly deteriorates.

Massive Blood Loss or Major Haemorrhage Protocol

Although different Healthcare Providers use different phrases, i.e. Massive Blood Loss or Major Haemorrhage Protocol, they all have such a protocol for the same reason.

If a patient arrives in the Emergency Department with massive blood loss or is already an inpatient and suddenly develops massive blood loss, there must be a system that gets them medical help and blood components urgently.

If there is not a system, or the staff are not familiar with the system and there are delays in providing both medical care and blood components, the patient is at high risk of dying.

Therefore anyone who may be involved in any way in the massive blood loss protocol, including collecting the blood components, needs to be familiar with the system and know exactly what to do when the alarm is raised and the protocol set in motion.

Q15 Give one reason why all staff who may be involved in the massive blood loss protocol should know exactly what to do when the alarm is raised.

Q16 Give one example of the two vital resources a patient experiencing massive blood loss in a hospital will require urgently.

1

Emergency Group O Blood

During a massive blood loss event, particularly in the Emergency Department when the patient is unknown to the hospital and we don't have a record of their blood group, it may be necessary in the first instance to transfuse the Emergency Group O Blood (this will be O Negative or could be O positive depending on the patient) it was often called Flying Squad Blood.

The Emergency O blood should only be transfused when there is very real danger that the patient will die unless a blood transfusion is given straight away and there is no time to wait for the Laboratory to analyse and issue blood that is the same blood group as the patient's. (This can take around 10 to 15 minutes from when the Lab receives a correctly labelled blood sample). So we are talking about patients who have lost a lot of blood and whose life is at serious risk.

Blood group O is the universal donor blood group for red cells, in other words it can be transfused to almost any patient.

Male patients and females over 50 years old can be given O Positive blood though it is not ideal, we do not have enough O Negative for everyone. Even the O Negative blood is not best for everyone and it is possible that transfusing it could lead to complications. For example, developing an antibody that could

threaten the safety of future pregnancies or the patient may already have an antibody and this may cause a reaction.

Therefore the Emergency O Blood must only be used when there is a very real threat to life.

The Emergency O Blood may be required at any time, so it is always available. When collecting this blood, there are no patient details to check it is vitally important however still to check it is the right blood and it is in date. Just collecting blood from the usual place in the fridge without checking it is the right blood is extremely dangerous. Unless you are collecting Emergency O blood you **must** always check all the patient details (minimum patient data set).

Q17 Give one example why it is vitally important to transfuse Emergency O Negative blood only if the patient's life is grave danger

1

Q18 When collecting Emergency O Negative blood, there are no right patient details to check against, what must still be checked before the blood is collected?

1

If you would like any further information or have any questions about this work booklet please speak to your Hospital Transfusion Practitioner or your manager

References

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