Royal College of Nursing

Right blood, right patient, right time

RCN guidance for improving transfusion practice

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Authors

Alexandra Gray,
Programme Manager, Effective Use of Blood Group, Scottish National Blood Transfusion Service, Edinburgh. Member of the RCN Blood Transfusion Steering Committee.

Jennifer Illingworth,
Transfusion Liaison Nurse, Hospital Liaison Team, National Blood Service, Newcastle. Member of the RCN Blood Transfusion Steering Committee.

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Introduction

Around 3.4 million blood components are transfused every year in the UK. Blood transfusion is a safe process that saves lives and improves the quality of life in a large range of clinical conditions. But there are a number of risks associated with transfusion as with any other clinical intervention.

Right blood, right patient, right time. RCN guidance for improving transfusion practice sets out pragmatic advice for nurses in the administration of red blood cells and plasma components (fresh frozen plasma and cryoprecipitate and platelets) in acute hospital care. The guidance is not wholly evidence-based, but built on recommendations to improve the safety of blood ordering and administration from current national guidelines and Serious Hazards of Transfusion (SHOT) reports (SHOT, 2003; BCSH, 1999; DH, 1999; DH, 2002; SHOT, 2002).

The British Committee for Standards in Haematology (BCSH), the four UK-country health departments and SHOT have all recommended that every health care practitioner involved in the transfusion process should receive appropriate education (SHOT, 2003; BCSH, 1999; DH, 1999; DH, 2002). The BCSH had already published their 1999 guidelines *Administration of blood and blood components and management of the transfused patient* (BCSH, 1999).

More recently in 2003, SHOT recommended that health care staff should receive transfusion procedures training, and formally assessed competency that is recorded if they contribute to the transfusion process (SHOT, 2003).

Despite these initiatives, transfusion errors continue to occur and recent audits of transfusion practice in the UK have demonstrated that patients are placed at risk (*see Table 1*; Gray, Buchanan, McClelland, 2003; RCP/NBS, 2003).

Table 1

Summary of UK Transfusion Practice Audit Results (Gray, Buchanan, McClelland, 2003; RCP/NBS, 2003)

- 18% of patients had no identification check when the pre-transfusion sample was taken.
- 11% of blood components collected had no patient minimum data set check.
- 10% of patients were not wearing a wristband during their transfusion.
- 47% of patients had no vital signs monitored within the first 30 minutes of the transfusion.

Transfusion risks

SHOT, a voluntary and anonymised reporting scheme, highlights potential transfusion risks. It collects data on the serious consequences of the transfusion of blood components in order to:

- educate users in transfusion hazards and their prevention
- improve standards of hospital transfusion practice
- inform policy in transfusion services
- aid the production of clinical guidelines on the use of blood components.

Since 1996, when the SHOT reporting scheme started, the number of adverse event reports has increased by 47%. The largest number of serious adverse events reported, 64% of all reports, has been in the *incorrect blood component transfused* (IBCT) category (see *Box 1*). The majority of these incidents involved the administration of a unit of blood intended for another patient, and most involved more than one error in the transfusion process.

There have been 193 ABO blood group incompatible transfusions reported to SHOT during the last six years. The figures show that of the 27 patient deaths, five were definitely related to transfusion. Another six deaths appear to be transfusion-related, and 15 were unrelated and one was unknown. Overall, 69 patients suffered major morbidity in the IBCT category. This resulted in, for example, the patient requiring admission to the intensive care unit or suffering major haemorrhage from transfusion induced coagulopathy (SHOT, 2003).

Box 1

Typical SHOT IBCT errors (SHOT, 2003)

- The blood sample was drawn from the wrong patient.
- Patient details were recorded incorrectly on the blood sample label or the blood request form.
- The incorrect unit was collected from the blood refrigerator.
- The formal identity check at the patient's bedside was omitted or performed incorrectly at the time of the administration of the blood component.

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The transfusion process

Every hospital must have policies and procedures in place for every step in the blood transfusion process (BCSH, 1999). While it is a medical responsibility to prescribe blood components, the completion of the request form, the responsibility for taking a blood sample for pre-transfusion testing, and the administration of the component can be delegated to a nurse or midwife with the appropriate training (BCSH, 1999).

Informing the patient

"Every patient has a fundamental legal and ethical right to determine what happens to his or her own body." (DH, 2001)

When you care for a patient who is about to undergo a blood transfusion, you should:

- inform the patient about the intended transfusion therapy, and give them the opportunity to discuss it and raise any concerns that they may have
- check that the decision to transfuse is recorded in the patient case notes before administering the blood component.

Good practice advice

You should give all patients who may receive a blood transfusion a full explanation about the proposed treatment. Use the patient information leaflets that are available from your local trust or Blood Transfusion Service.

Sampling

"Every patient who may require a transfusion during an inpatient or day patient episode will wear an identity band on which is recorded legibly the patient's correct minimum identification data." (BCSH, 1999)

When you take a blood sample, you should:

- ask the patient to *state* their first name, surname, and date of birth to check that you have the right patient before you draw the sample
- ask another member of staff, relative or carer to verify the patient identification details if the patient is unable to do this, for example, because they are unconscious or a child
- check the details against the patient's identity wristband
- collect the required amount of blood into the appropriate sample tube. For example, this should be a minimum of 1 ml for neonates or very young patients
- *after* you have drawn the blood sample, and *before* you leave the patient, label the compatibility sample tube clearly and accurately with the patient details that you have taken from the identity wristband
- sign the sample tube as the person drawing the sample
- check that the patient details on the sample tube and request form correspond
- send the blood sample tube and request form to the hospital transfusion laboratory (HTL) with the appropriate request date and time.

Good practice advice

When you are taking a blood sample you should:

- spell the patient's name correctly and consistently when you label the sample tube and complete the request form
- give all unconscious patients a unique patient identification number and record the gender on the identification wristband as a minimum
- bleed only one patient at a time in order to reduce the risk of a patient identification error
- avoid taking the blood sample from the arm that is the infusion site because this may result in a diluted sample being sent for analysis, or a spurious laboratory result being obtained
- never pre-label the compatibility tube. For example, do not write the details on the sample label in advance of drawing the blood. Pre-labelling of sample tubes has been identified as a major cause of patient identification errors that can lead to fatal transfusion reactions
- ensure that a valid reason for transfusion is provided on the request form and record any past relevant transfusion history and special requirements, such as CMV negative or irradiated components.

Collection

You should ensure that every blood component collected is checked against the patient's minimum identification data set (BCSH, 1999 and see *Box 2*). You should:

- check that the details on the blood collection form, or local documentation, match the information on the patient's wristband before passing the request to the person collecting the blood component
- check the patient's identification details on the blood collection form, or local documentation, against the patient compatibility label on the blood component that you have just collected
- document the removal of the unit of blood by putting the date, time and signature of the person removing it onto the blood fridge register or electronic release system
- inform the person who requested the blood component that it has arrived as soon as it is delivered.

Box 2

Patient minimum identification data set

- Name(s)
- Surname
- Address (in certain UK regions)
- Date of birth
- Hospital identity number

Pre-administration

The transfusion should begin as soon as possible after the blood has arrived in the clinical area (BCSH, 1999). You should check that the:

- patient understands the process and why the transfusion is being given, and explain the procedure fully
- blood component has been prescribed appropriately
- baseline observations of temperature, pulse and blood pressure are undertaken before starting the transfusion of *each unit* of blood
- expiry date of the blood component is correct, and undertake a visual inspection for any signs of discoloration, clumping or leaks.

You also need to check if the patient has any special requirements, such as iradiated blood, and if they require any concomitant drug, such as a diuretic.

Good practice advice

If there are any discrepancies at this point, it is important that you do not proceed until they have been resolved.

Administration

You should ensure that every individual who needs a blood transfusion as an inpatient or day patient has a final identity check (BCSH, 1999). Remember to follow these action points:

- positively identify the patient (see Box 2) using an open question "can you tell me your full name and date of birth?"
- ask another member of staff, relative or carer to verify the patient identification details if the patient is unable to do this if, for example, they are unconscious or a child
- check these details against the patient's wristband for accuracy
- check that the blood group and the donation number on the compatibility label are identical to the blood group and donation number on the blood component
- repeat this process *for each* component administered.

Good practice advice

- If there are any discrepancies at this point, it is important that you do not proceed until they have been resolved.
- The environment in which the transfusion is conducted must provide adequate working space, and allow staff responsible for the final patient identity check to carry out an uninterrupted procedure.
- If you are interrupted in the checking procedure, you must start again.
- You must wash your hands, and follow your local infection control policy when you administer blood components.

Patient monitoring

You should ensure that every patient who receives a transfusion is monitored throughout the process (BCSH, 1999). Good record keeping is the mark of a skilled and safe practitioner (NMC, 2002). You should:

- ensure that the patient is in a setting where they can be closely observed
- advise and encourage your patient to notify you immediately if they begin to feel anxious, or if they become aware of any adverse reactions such as shivering, flushing, pain or shortness of breath
- monitor the patient's temperature and pulse 15 minutes after you begin the transfusion of *each unit*, and record them on the transfusion observation chart
- adjust the flow-rate so that you achieve the correct infusion rate over the prescribed time period
- make additional observations indicated by the patient's condition and according to your local hospital policy
- continue routine observations throughout the transfusion for an unconscious patient: temperature, pulse, blood pressure, and urinary output
- document the start and finish times of each unit
- record the volume of blood transfused on the fluid balance chart, or 24-hour chart
- file the transfusion documentation in the patient's case notes

If you suspect a transfusion reaction:

- stop the transfusion and immediately inform the doctor
- if the reaction appears life-threatening, call the resuscitation team
- record the adverse event in the patient case notes
- report the adverse event in accordance with your hospital policy.

Good practice advice

You should monitor patients closely during the first 15 minutes of the blood transfusion because severe reactions can occur in the early stages of the process.

Technical aspects of administering blood components (BCSH, 1999; McClelland, 2001)

- The size of the cannula depends on the size of the vein and the speed at which the blood is to be transfused.
- Blood components must be transfused through a blood administration set with an integral mesh filter (170–200µm pore size).
- In neonatal and paediatric practice, where small volume transfusions are being drawn into a syringe for transfusion, an appropriate filter must be used (Blood Transfusion Task Force, 2004).
- Only use infusion pumps if they are certified as suitable for blood components by the manufacturer, and an appropriate administration set is used. You should ensure that the correct flow rate is set.
- Blood warmers can be used for blood components provided that they are specifically designed for that purpose, and include a visible thermometer and audible alarm. *Never* improvise by warming blood components in hot water, in a microwave or on the radiator.
- Do not add pharmaceuticals to blood components.
- All blood components should be transfused within four hours of spiking the pack and within four hours and 30 minutes of removal from the blood fridge or hospital transfusion laboratory.
- Change the administration set at least every 12 hours for a continuing transfusion and on completion of the transfusion.
- Discard the empty blood bags according to your hospital policy.

2

The role of the nurse in the transfusion process

To promote and safeguard the patient's interests and wellbeing, the Nursing and Midwifery Council advises that "the administration of medicines is not solely a mechanistic task to be performed in strict compliance with the written prescription of a medical practitioner. It requires thought and the exercise of professional judgement" (NMC, 2002). The same criteria should apply to the administration of blood components.

By becoming educated practitioners in the blood transfusion process nurses can demonstrate their skill and competency in this field. This will lead to increased compliance in high risk areas of the transfusion process, such as patient identification procedures and record keeping. Further, it will improve patient outcomes, and reduce clinical risk and error rates.

3

The role of the transfusion practitioner

The four UK health departments (2002) and SHOT (2003) have recommended that every trust should employ a hospital transfusion practitioner, such as a specialist nurse or biomedical scientist. If this recommendation is followed, hospital transfusion practitioners, working with lead consultants in blood transfusion and local blood bank managers, will be able to support clinical teams in the safe and effective use of blood. They will also be able to promote good transfusion practice actively by:

- endorsing national guidelines and evidence-based practice.
- facilitating transfusion audit and feedback (continuous improvement).
- facilitating incident reporting and follow up on any errors or near misses.
- encouraging education/training and increasing clinical competency.
- participating in the implementation of new technologies that enhance patient safety (Gray, Melchers, 2003; Dzik, 2003).

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