The Chief Medical Officer's
National Blood Transfusion Committee

SERIOUS HAZARDS OF TRANSFUSION SHOT

NHS
National Patient Safety Agency

Safer practice notice 14

Notice

9 November 2006

Immediate action	☐
Action	☑
Update	☐
Information request	☐

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Right patient, right blood

Blood transfusions involve a complex sequence of activities and, to ensure the right patient receives the right blood, there must be strict checking procedures in place at each stage.

An initiative has been launched that offers a range of long and short term strategies to ensure blood transfusions are carried out safely. The National Patient Safety Agency (NPSA), the Chief Medical Officer's National Blood Transfusion Committee (NBTC) and Serious Hazards of Transfusion (SHOT) have collaborated to develop and evaluate these strategies.[1]

Administering the wrong blood type (ABO incompatibility) is the most serious outcome of error during transfusions. Most of these incidents are due to the failure of the final identity checks carried out between the patient (at the patient's side) and the blood to be transfused.

SHOT data have shown that between 1996 and 2004, five patients died as a direct result of being given ABO incompatible blood. ABO incompatibility contributed to the deaths of a further nine patients and caused major morbidity in 54 patients.[2]

Action for the NHS and the independent sector

By May 2007, all NHS and independent sector organisations responsible for administering blood transfusions in England and Wales should have:

1 Agreed to and started to implement an action plan for competency-based training and assessment for all staff involved in blood transfusions.

2 Ensured that the compatibility form (or equivalent) and patient notes are **not** used as part of the final check at the patient's side. They should comply with their blood transfusion policy which stipulates that the final identity check must be done next to the patient by matching the blood pack with the patient's wristband (or identity band/photo identification card).

3 Systematically examined their local blood transfusion procedures, using formal risk assessment processes, and appraised the feasibility and relevance of using:

a bar codes or other electronic identification and tracking systems for patients, samples and blood products (a clinical transfusion management system);

b photo identification cards for patients who undergo regular blood transfusions;

c a labelling system of matching samples and blood for transfusion to the patient concerned.

For response by:
- NHS and independent sector organisations responsible for administering blood transfusions in England and Wales

For action by:
- Chief executives

The NPSA recommends NHS organisations inform:
- Nursing directors
- Medical directors
- Transfusion practitioners
- Clinical governance leads
- Risk managers
- Patient advice/liaison service staff in England
- Service managers
- Hospital transfusion committees

The NPSA has informed:
- Chief executives/regional directors and clinical governance leads of strategic health authorities (England) and regional offices (Wales)
- NHS Blood and Transplant
- The Welsh Blood Service
- Regional Blood Transfusion Committees
- Healthcare Commission
- Healthcare Inspectorate Wales
- NHS Purchasing and Supply Agency
- Welsh Health Supplies
- Royal colleges and professional bodies
- NHS Direct
- Relevant patient organisations and community health councils in Wales
- Independent Healthcare Advisory Services
- Commission for Social Care Inspection
- National Association of Theatre Nurses
- National Association of Assistances in Surgical Practice
- Connecting for Health
- Informing Healthcare
- Medicines and Healthcare products Regulatory Agency
- NHS Litigation Authority
- Quality Improvement Scotland and DHSSPS, Northern Ireland

Action deadlines for the Safety Alert Broadcast System (SABS)

Deadline (action underway): 22 November 2006
Action plan to be agreed and action started

Deadline (action complete): 1 May 2007
All actions to be completed

Further information about SABS can be found at:
www.info.doh.gov.uk/sar2/cmopatie.nsf

Further information on the action points

1 **Develop competencies for staff involved in blood transfusions**
The NPSA, in collaboration with other key stakeholders, has developed national competencies for obtaining a venous blood sample; organising the receipt of blood/blood products for transfusion; collecting blood/blood products for transfusion; preparing to administer transfusion of blood/blood products to patients; and administering a transfusion of blood/blood products. These competencies are relevant to **all** clinical staff groups involved in the transfusion process.

Formal assessment of the relevant competencies is required for nurses, midwives, medical staff, phlebotomists, healthcare assistants, porters, operating department practitioners and other staff involved in the blood transfusion process. Assessments should be carried out every three years.

By May 2007, all NHS and independent sector organisations should have drawn up an action plan describing how competency assessments will be carried out and recorded. By May 2008, 50 per cent of all relevant staff should have been formally assessed against these competencies. By November 2009, all initial competency assessments should have been undertaken.

To assist NHS and independent sector organisations in training and assessing the competencies locally, the NPSA has integrated training materials into the existing training programme for blood transfusion that has been developed by the Scottish National Blood Transfusion Service. These training materials (available at **www.npsa.nhs.uk** and **www.learnbloodtransfusion.org.uk**) have been developed for use by local trainers and include:

- standard facilitator presentation and speaker notes;
- competency assessment frameworks;
- flow chart for promoting staff engagement;
- hospital poster to inform staff.

2 **Ensure compatibility forms are not used as part of the final patient identity check and that this check is done at the patient's side**
All hospitals must ensure that their local procedures incorporate an auditable final patient identification check in accordance with the NPSA's final patient identity check flow chart (see Resource summary on page 4).

Recent SHOT data illustrate that reliance on compatibility forms and checking these against patients' notes has been a significant contributory factor to ABO incompatible transfusions. Analysis of reports received in 2005 indicates that in six of seven cases in which blood administration error resulted in an ABO incompatible transfusion, the blood was checked away from the patient's side using a compatibility form or equivalent.[3]

3 **Formally risk assess local blood transfusion procedures**
We recognise that different solutions for checking identity may be appropriate to different local circumstances. We suggest that each NHS or independent sector organisation appraises and assesses, in accordance with local risk assessment frameworks,[4] the feasibility of the following ways of reducing misidentification:

a Bar codes or other electronic identification and tracking systems

Bar code technology involving hand-held computers is being used in selected departments in some hospitals to improve safety in sample collection, compatibility testing and blood administration. Bar code technology is also being used in a number of hospitals to monitor and control blood being removed or moved between blood fridges.

Radio-frequency identification technology is also being developed for the same purpose. This uses radio-frequency transfer of data between a reader and a tag.

The NPSA has developed a standard specification for IT tracking systems (Electronic Clinical Transfusion Management System) based on work carried out by the 'Do Once and Share'[5] blood transfusion project team for Connecting for Health (CfH) and the NBTC. The specification builds on the experiences of users of the different systems currently available and addresses the patient safety risks identified in the transfusion process.

In developing the specification we have sought consensus from key stakeholders and have incorporated the traceability requirements of the Blood Safety and Quality Regulations[6], including the maintenance of a complete record of all blood components and products, from donor to recipient, for 30 years.

The NPSA's IT specification identifies all the safety and functionality issues that we are currently aware of, and that future systems will need to address. The specification does not, however, provide sufficient detail for manufacturers to develop the systems and software required for the introduction of system-specific IT technology.

The specification is endorsed by both CfH in England and Informing Healthcare in Wales. It is available as a hard copy or can be downloaded from **www.npsa.nhs.uk**

Next steps

CfH will, with the support of the NPSA, carry out a pilot with one or more acute healthcare organisations (to start by spring 2007) to build on and implement the requirements of the IT specification that will be delivered to Local Service Providers. The NPSA will also work with Informing Healthcare to introduce similar technology to the acute sector in Wales.

b Photo identification cards for patients who undergo regular blood transfusions

The National Comparative Audit of Blood Transfusion 2005 found that patients receiving blood or blood products as outpatients or day cases do not always wear wristbands.[7] Photo identification cards are a sustainable and cost-effective means of identifying patients. They may be used as an alternative to wristbands and have been developed for patients who receive regular blood transfusions as outpatients or day cases.

The procedure gives patients ownership of their own photo identification card and involves the patients themselves in the identification process. Early indications from pilot studies suggest that photo identification cards are very well-received by patients, and are preferable to wearing a wristband, and also promote a feeling of involvement.

The NPSA has produced guidelines for organisations introducing a photo identification system and an information leaflet for patients (see Resource summary on page 4).

c A labelling system of matching blood to the patient

This labelling system is an additional numbering system for blood transfusions to minimise transfusion errors (it is sometimes called the 'red label' system). At the time of sample collection, one label with a unique number is attached to the patient by means of a wristband. Further labels (with the same number) are attached to the sample tube and request form. After compatibility testing, the laboratory print the same label number on the compatibility label attached to the unit of blood. During pre-transfusion checking at the patient's side, the label number on the wristband and the unit of blood are matched.

The system can be adapted to suit local circumstances. Evaluation has shown that although this system has been available for many years, uptake has been limited.[8]

Further information on the use of the system can be obtained from South Tyneside NHS Foundation and Maidstone & Tunbridge Wells NHS Trust.[8]

The NPSA has produced a flow chart for organisations interested in introducing the system (see Resource summary below).

Resource summary

Resource	For use by	Audience
Competencies		
Competencies*	Healthcare staff	Healthcare staff
Standard facilitator presentation and speaker notes	Local trainer	Healthcare staff
Competency assessment frameworks	Local trainer	Healthcare staff
Flow chart	Local trainer	Healthcare staff
Hospital poster	Local trainer	Healthcare staff
Final patient identity check		
Flow chart	Healthcare staff	Healthcare staff
Technology		
Electronic Transfusion Management System	CfH, Informing Healthcare, IT manufacturers, NHS IT leads	Local Service Providers, IT manufacturers, NHS IT leads
Photo identification		
Guidelines for photo identification cards	Local implementer	Healthcare staff
Photo identification patient leaflet	Patients	Patients
Labelling system		
Flow chart	Local implementer	Healthcare staff

*The NPSA is currently working towards ensuring that the competencies receive endorsement from Skills for Health.

All the above resources can be downloaded from **www.npsa.nhs.uk**
The hospital poster, IT specification and photo identification patient leaflet are also available as hard copies from the NHS response line (08701 555455).

Background information

This project originated from a blood safety stakeholders' workshop held jointly by the NPSA, the NBTC and SHOT at the Royal College of Pathologists in December 2004. The aim of the workshop was to identify effective local solutions to the misidentification of patients receiving blood transfusions. At this workshop, the NPSA announced a target of reducing the number of ABO incompatible transfusion incidents by 50 per cent over three to five years, as measured by the SHOT database.

Analysis of 221 identified errors in 130 ABO incompatible transfusions reported to SHOT between 1999 and 2003 showed that 59 per cent (131) of errors involved collection of the wrong unit of blood from the storage site and/or administration to the wrong patient.

Safe administration of blood according to British Committee for Standards in Haematology[9] requires that:

- the patient is identified by a correct wristband (or identity band/photo identification card);
- the patient's identity is confirmed verbally, where possible;
- the patient details on the blood pack label are compared **at the patient's side** with those on the patient's wristband.

Between November 2003 and April 2006, the NPSA received 41 reports of incidents directly related to identification errors in:

- blood samples taken for transfusion;
- collection of blood from the blood fridge;
- blood administration.

Two of these incidents resulted in the wrong patient receiving the wrong blood.

Reporting incidents

Staff should be encouraged to report patient safety incidents relating to blood transfusions, including near misses, to their local risk management systems and to the hospital transfusion team (consultant haematologist with responsibility for blood transfusion, transfusion practitioner and transfusion laboratory manager), who are responsible for reporting to SHOT. It is essential that all such events are reported to SHOT, using the SABRE electronic reporting system, so that lessons are learned and shared, and the effect of interventions monitored.

Patients' views

The NPSA held a workshop for patients who regularly undergo blood transfusions, and their carers. Key messages from this workshop were:

- it is particularly common for patients' identity not to be checked when they are well known to healthcare staff;
- patients would like to be more involved in the checking process;
- there is a concern that clinical staff will become over-reliant on the use of technology and not follow manual checking procedures;
- the use of photo identification cards brings all patient information together and the photograph makes identity checking more acceptable to patients.

Additional work

This safer practice notice is part of a wider programme of NPSA work on safer patient identification. Other work includes:

- An NPSA report, *Right patient – right care*, was published in December 2004. It summarises research on manual checking and the use of technology for patient identification (available from **www.npsa.nhs.uk**).
- A safer practice notice, 'Wristbands for hospital inpatients improves safety', was released in November 2005 and stated that all hospital inpatients should wear wristbands.
- Work is in progress to create a national standard for wristbands that specifies colour, design and which patient details should be included.
- Research has been commissioned, and should be available in early 2007, to observe current practices in bedside identity checking and to recommend a standard process that can be used across the NHS.

The principles of all these solutions are fully supported by a wide range of royal colleges and professional organisations.

Evaluation

The impact of this notice will be measured using SHOT data and the NPSA will undertake a systematic review of all incidents relating to blood safety reported to the National Reporting and Learning System. The impact will also be evaluated in England though the Safety Alert Broadcast System six months after issue, and in Wales through the Regional Offices of the Welsh Assembly Government. Progress will also be monitored in England through the Regional Transfusion Committees and in Wales through the Blood Implementation Group, as part of the Better Blood Transfusion initiative.[10] In addition, the Healthcare Commission, CNST and Regional Offices in Wales will monitor the implementation of the recommendations in this safer practice notice.

Compliance with the recommendations in this notice will be included in the next National Comparative Audit of Blood Transfusion.

Available support

Regional Transfusion Committees are available as a source of local support for better transfusion practice, and in Wales through the Welsh Assembly Government's Blood Implementation Group. Regional 'Train the trainers' days are also planned for the introduction of competency assessment.

Further details

For further information about the NPSA's work on blood safety, please contact:
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References

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8 *Right patient, right blood* evaluation reports. Available at: **www.npsa.nhs.uk**
9 British Committee for Standards in Haematology, Blood Transfusion Taskforce. Guidelines for the administration of blood components and management of the transfused patient. *Transfusion Medicine*. 1999; 9: 227-238. Available at: **www.bcshguidelines.com**
10 Department of Health. *Better blood transfusion: appropriate use of blood.* (2002).

N A safer practice notice strongly advises implementing particular recommendations or solutions.

This safer practice notice was written in the following context:
It represents the view of the National Patient Safety Agency, which was arrived at after consideration of the evidence available. It is anticipated that healthcare staff will take it into account when designing services and delivering patient care. This does not, however, override the individual responsibility of healthcare staff to make decisions appropriate to local circumstances and the needs of patients and to take appropriate professional advice where necessary.