21. Near Miss Reporting

Definition

A near miss event refers to any error which, if undetected, could result in the determination of a wrong blood group or transfusion of an incorrect component, but was recognised before the transfusion took place.

SHOT has been collecting near miss events since 2000–01, and data have consistently shown that approximately 50% of these events occur at the sampling phase. A workshop was held in November 2006, following on from which two surveys were undertaken, the first of which analysed sample errors detected at 'booking in' and the second involved sample errors that were detected later in the process. The results of these surveys have been presented in the 2008 SHOT report, and a decision was then taken not to further analyse errors falling into the former category.

There is considerable overlap between the near miss reports submitted to SHOT and serious adverse events (SAEs) reported to the MHRA. Their analysis here is valuable in that they highlight potential weaknesses in the process of blood transfusion and often have the same root cause as the reported actual transfusion errors.

This year 921 near miss reports were received, of which 58 were withdrawn by the reporter since they constituted labelling errors that were detected during the 'booking in' process or wastage of components due to changes in the clinical condition of the intended patient. For consistency, the remaining 863 reports have been analysed in accordance with the categories previously used.

Table 51
Numbers of near misses according to category of incident

Category of incidents	No. of cases
Sample errors	409
Request errors	44
Laboratory procedural or testing errors	119
Laboratory component selection errors	100
Component collection/administration errors	50
Expired components available	29
Cold chain events	97
Others	15
Total	**863**

Sample errors *n* = 409

There were 386 cases due to WBIT. The remaining 23 errors related to samples being labelled incorrectly (omissions or errors in patient identifiers), which were not rejected at booking but were detected at a later stage in the process.

WBIT *n* = 386

Of 386 reports, the majority of samples were taken by a doctor, and in all but 4 cases these events could have been prevented by ID of the patient at the bedside at the time of blood sampling. Instead, reliance was placed on case notes, request forms or prescription charts that did not belong to the patient in question, for patient ID.

Table 52
Staff responsible for WBIT incidents

Staff responsible for taking sample	No. of reports
Doctor	170
Nurse	75
Midwife	55
Healthcare assistant	16
Phlebotomist	13
Medical student	2
Unknown/not stated	55
Total	**386**

Practices leading to WBIT

Examples of how incorrect patient ID occurred, which could have been prevented by ID of the patient at the bedside, include:

- Sample labelled by a second person away from the bedside.
- Incorrect patient record selected on PAS in A&E.
- Sample labelled with information from the incorrect prescription chart.
- Sample labelled with information from the incorrect request form.
- Sample labelled from the information given in the incorrect notes:
  - Wrong notes obtained from medical records on patient admission, 1 of which was only discovered when the patient entered the day case theatre.
  - Wrong notes selected by phlebotomist – patient was either in a different bed number than had originally been allocated or the notes had been filed against a different bed number.
  - Another patient's addressograph labels were filed in the notes that were used to identify the patient.

There were 4 cases where the error in patient identity could not have been detected by the phlebotomist:

- Identity theft: a young male arrived unconscious in A&E and a driving licence found in his wallet was used to identify him for blood samples. However, when his parents arrived it transpired that the driving licence belonged to his older brother.
- The records of 2 patients with the same name and date of birth had been merged within the Trust, only 1 of whom had a historic blood group.
- 2 cases where patients shared the NHS number with another patient.

Case 1

Incorrect patient record selected from PAS

During a trauma call, a doctor sampled the patient and gave the sample to a second person, verbally confirming the name and date of birth of the patient. This second person interrogated the PAS but selected a patient record with the same forename and family name but with a one digit difference in the date of birth, which was used to identify the sample.

Case 2

Patients identified by bed numbers only

A nurse was instructed to take a blood sample from the patient in Bed 2. She was given no documentation and continued to label the sample with the information contained in the notes for that bed number. However, it was not appreciated until later that a different patient was now occupying Bed 2 and that the request should have applied to the patient in Bed 3.

Circumstances leading to the detection of WBIT

In the majority of cases, the error was detected since there was a discrepancy between the groups of the current sample compared with the historical group.
In other circumstances:

- The clinical area identified that the incorrect patient had been bled (23 cases).
- The difference in identity was appreciated through unexpected changes in the results of other tests (10 cases):
  - Sequential full blood counts (FBCs) revealed unaccountable differences in red cell indices, white cell or platelet counts.
  - The Hb quoted on the request form for crossmatching did not match the known result for that patient.
- The error was appreciated when the laboratory telephoned the ward (7 cases):
  - Blood was available for a patient who had no prescription for blood while the ward was expecting blood to be available for a second patient.
  - Requesting a repeat sample from a patient for whom a crossmatch was not required.
  - Requesting a repeat sample because of an inadequately labelled sample.
  - To inform that there would be a delay in obtaining blood because of an unexpected antibody.
  - The laboratory could not find a patient on the theatre schedule with the name and clinical details provided on the request form.
  - The laboratory had not received a sample from the patient for whom an urgent crossmatch had been requested.
- The error was appreciated when the ward telephoned the laboratory (2 cases):
  - because the ward could not find any record of the FBC on the computer
  - to enquire whether the blood was available for the patient.
- Two samples arriving to the laboratory within a short space of time with the same identifiers but having different blood groups (patients in adjacent beds both labelled with one patient's details) or 2 samples with different patient identifiers but having identical haematological parameters (same patient has been bled twice).
- Maternal and neonatal samples had been transposed.

Request errors *n* = 44

Table 53
Categories of request errors

Category	No. of cases
Special requirements not requested	25
Request for incorrect patient	15
Request based on erroneous FBC	2
Inappropriate request for clinical situation	2
Total	**44**

The most common error was the omission of the request for specialist requirements, which were picked up by a variety of means, as shown in Table 54.

Table 54
Mode of detection that special requirements had not been requested *n* =25

Mode of detection	No. of cases
Contact between laboratories on patient transfer	1
Patient in possession of card indicating requirement for irradiated components	3
Patient in possession of antibody card	1
In laboratory, based on the clinical details provided	7
At the bedside pre-administration check	13
Total	**25**

Case 3

Patient's persistence in showing his antibody card avoids a transfusion of non-phenotyped units

A patient was in possession of an antibody card, which he showed to the phlebotomist. However, this information was not transmitted to the laboratory, the antibody screen was negative and non-phenotyped red cells were issued. The patient again presented his card to the nurse at the time of the bedside pre-administration check, following which antigen negative units were issued.

Requests for the incorrect patient *n* = 15

These were detected either in the laboratory when a verbal request was made to convert a G&S into a crossmatch and no sample was available, or at the bedside when units arrived and there was no prescription or indication that blood was required.

Anti-D Ig was requested for 5 incorrect patients, several of whom were RhD positive and 1 of whom was a male. These inconsistencies were not noted in the laboratory.

Inappropriate request for clinical situation *n* = 2

- Blood was requested for a patient when the doctor was unaware that the transfusion had taken place the previous evening.
- A neonate was prescribed 1 unit of red cells rather than a calculated volume.

Laboratory procedural or testing errors *n* = 119

Table 55
Categories of laboratory procedural or testing errors

Category	No. of errors
Sample booked in under incorrect record	9
Incorrect patient identifiers entered onto LIMS	27
Incorrect patient mergers on LIMS	2
Barcode reader errors	5
Manual grouping errors	9
Incorrect sample used for grouping	2
Incorrect sample used for crossmatching	4
Invalid sample used in crossmatching for a frequently transfused patient	9
Incomplete testing prior to issue	7
Inappropriate editing of results from analyser	4
Component mislabelled	34
Expired antibody identification panel in use	4
Other	3
Total	**119**

Sample booked in under incorrect record *n* = 9

Three of these errors were noted on testing a repeat sample, 3 during a 'final check'; the means of detecting the final 3 were not stated.

Incorrect patient identifiers entered onto LIMS *n* = 27

Fifteen errors were detected at the bedside, 1 at collection, 8 during testing or authorisation in the laboratory and in 3 cases were not stated.

Incorrect patient mergers on LIMS *n* = 2

Both of these errors were detected on testing a second sample.

Barcode reader errors *n* = 5

In 2 instances the ABO group was read incorrectly, in 2 the RhD group was read incorrectly and in 1 the expiry date was read incorrectly. All were detected at the bedside.

Manual grouping errors *n* = 9

These consisted of 5 transcription errors and 4 errors of interpretation. In 1 case an incorrect group was reported and in a second case the incorrect group of red cells was issued but later recalled. Two errors were noted by a second BMS checking the entries into LIMS, 2 at authorisation, 2 on testing the next sample from the patient and in the remaining 3 the means of detection were not stated.

Incorrect sample used for grouping *n* = 2

There were 2 cases, both of which were due to transposing the barcode labels allocated to adjacent samples in a rack.

Case 4

Barcodes allocated to adjacent samples transposed

The laboratory barcodes allocated to the adjacent samples of Patient A and Patient B were transposed. Patient A had no previous transfusion history, grouped as B positive and 2 units of red cells were issued. Patient B had historically grouped as B positive but on this occasion grouped as O positive. The red cells issued to Patient A were recalled.

Incorrect sample used for crossmatching *n* = 4

These cases were due to selecting the incorrect sample when converting a group and screen to a crossmatch. In 2 instances the errors were noted by the BMS removing the samples from the analyser and in the remaining 2 the errors were noted at authorisation.

Invalid sample used for crossmatching in a frequently transfused patient *n* = 9

Two of these errors were noted at crossmatching, 1 at issue, 5 during restocking and in 1 the means of detection was not stated.

Incomplete testing prior to issue *n* = 7

These errors were detected at authorisation or at a later stage in the process.

- Failure in a non-urgent situation to perform an antibody identification panel on patients with positive antibody screens with the intent to issue crossmatch compatible units (2 cases).
- Failure to perform a panel on patients with known antibodies (3 cases).
- To electronically issue red cells on samples with unexpected reactions with A1 or B cells on grouping and no further investigation (2 cases).

Inappropriate editing of results from analyser *n* = 4

- Weak positive antibody screens were edited to negative, in 1 case when the patient had a history of antibodies (error detected at authorisation) and in the second when a repeat sample 2 days later confirmed the presence of anti-K.
- Uninterpretable D groups edited to positive when on subsequent testing confirmed to be D negative.

Labelling errors *n* = 34

In 11 cases these errors were detected at collection, in 13 at the bedside and in 2 instances in the laboratory. In the remainder, the means of detection is unknown.

- Eight instances of platelets being labelled with another patient's ID, including 2 where the labels of 2 patients had been transposed.
- Twenty instances of labels being transposed between the units of red cells crossmatched for the same patient.
- Three instances where labels had been placed on units of red cells crossmatched for another patient, in 2 instances detected in the laboratory when the BMS found units he had crossmatched already in the issue fridge labelled for another patient, and in 1 case detected at the bedside.
- Three instances of FFP being labelled incorrectly, in 2 instances when the labels had been transposed between the units of FFP allocated to the same patient and in the third when the units had been labelled for another patient.

Expired antibody identification panel in use *n* = 4

In 1 case, the panel was found in the reagent fridge the following day and in 3 the errors were detected on entering the results onto LIMS.

Laboratory component selection errors *n* = 100

Table 56
Categories of laboratory component selection errors

Category	No. of cases
Special requirements or specification not met	65
Incorrect component selected	10
Component selected for a non-urgent transfusion with a reservation period beyond the expiry date	19
Anti-D Ig issued for an RhD positive female	6
Total	**100**

Special requirements or specification not met by laboratory *n* = 65

Errors made were either due to a failure to take heed of the information provided on the request form or computer flags, or, in the case of the provision of 'flying squad' and paediatric components, a lack of knowledge and failure to follow local SOP. Fifty-five of these were detected at the bedside, 6 when the component was collected from the issue fridge and 4 when recalled by the laboratory.

Table 57
Failure to issue components with special requirements or specification

Special requirement or specification	No. of cases
CMV negative	11
Irradiated	22
CMV negative and irradiated	11
HLA typed	3
Red cell phenotyped	8
Incorrect specification selected for 'flying squad'	6
Apheresis platelets	1
MB-FFP	1
Platelets in PSM	1
Washed red cells	1
Total	**65**

Wrong component selected *n* = 10

- 3 cases where an incorrect component was selected in an emergency on the basis of a verbal request (FFP instead of cryo or red cells).
- 2 cases where an incorrect dose of anti-D Ig was issued at delivery.
- 4 cases where computer flags were ignored with respect to group changes following SCT.
- 1 case when RhD positive platelets were issued to an RhD negative female, overriding the warnings.

Expired component selected *n* = 19

There were 19 cases where units were selected for crossmatch and reserved beyond the expiry date. These errors were picked up either at the bedside or during routine fridge clearance.

Collection errors *n* = 49

These were consistently detected at the pre-administration bedside check, although in several instances the units had been signed as correct when received into the clinical area. However, in 8/49 instances the unit had already been 'spiked', i.e. attached to a giving set prior to the pre-administration bedside check being conducted and the error being recognised.

The sources of errors were, when known, as follows:

- Porter not given a collection slip but only a verbal request for collection (3 cases).
- Inaccuracies on the collection slip (6 cases):
  - Given the incorrect collection slip.
  - Incorrect addressograph placed upon slip (2 cases).
  - Patient details otherwise incorrect (3 cases).
- The collection slip contained all the necessary patient identifiers but the staff member collecting the unit relied on family name alone to identify units, when units for 2 patients with the same surname were in the issue fridge (10 cases).
- Ignored warnings on removing incorrect unit from electronically controlled satellite fridge (6 cases).
- Collected the incorrect component (1 case), i.e. cryoprecipitate instead of platelets.
- Collected crossmatched rather than emergency O RhD negative from the issue fridge.

Case 5

Warnings ignored of blood being available in the issue fridge for 2 patients with the same surname

A porter went to collect blood without a blood collection slip and selected blood for an incorrect patient with the same surname. Stickers were in place on the units of blood and in the ledger to alert staff that blood was in the fridge for more than 1 patient with the same surname.

Case 6

Surgeon 'bucks' the protocol for collecting blood in an emergency

In an emergency, a porter had arrived at the hospital transfusion laboratory and was waiting for the BMS to come off the phone in order to collect the red cells. In the meantime a surgeon, somewhat frustrated by delays, collected them 'as he was passing blood bank', without signing the register.

Case 7

Over-riding an electronically controlled fridge

A unit of blood was taken from an electronically controlled fridge for a patient in theatre using the emergency access button, rather than using a staff ID barcode and entering the patient's details. The unit was 'spiked' before it was appreciated that the incorrect unit had been removed.

SAEs related to management of the cold chain *n* = 97

Table 58
Categories of SAEs related to management of the cold chain

SAE	No. of cases
Failure to follow procedure for transfer of units with the patient	13
Units kept in transport container for longer than the recommended period, including 3 cases where units were delivered to the incorrect location	33 (includes 4 near misses when the event was noted at time of transfusion)
Incorrect packaging of transport containers	2
Red cells stored in a non-designated refrigerator	7
Red cells stored in a freezer	2
Red cells temporarily placed in a bucket containing ice in theatre	1
Platelets stored in a fridge	4 (includes 1 case where BMS put platelets into the fridge)
Red cells placed in a satellite fridge known to be malfunctioning (alarming or awaiting engineer)	2
Satellite fridge alarms unheeded or where local staff unaware of correct procedure	7
Issue fridge alarms unheeded/muted	3
Satellite fridge failures	2
Attempts to return units that had been out of a temperature-controlled environment for more than 30 minutes to stock	11
Incomplete audit trails despite electronic blood tracking	10
Total	**97**

Case 8

BMS ignores hospital transfusion laboratory fridge alarm

During on-call, the hospital transfusion laboratory fridge alarmed as the door was left open. The BMS turned off the alarm without any investigation and the open fridge was detected the following morning by another BMS: 58 units of red cells were wasted.

Case 9

Lack of training for clinical staff cleaning satellite fridge

A new member of staff was cleaning the theatre fridge, and left the blood in the fridge instead of transferring it to a validated box. The fridge temperature increased to 7.5 °C and 16 units of blood were wasted.

Other clinical adverse events *n* = 9

- Incorrect transcription of blood group onto antenatal care pathway (4 cases).
- Failure of switchboard to raise the major haemorrhage alert.
- Failure to respond to request for a second sample on patients with antibodies, resulting in delays in the supply of red cells at the time of surgery (3 cases).
- Red cell unit spiked and then decision made that the patient was not fit for transfusion.

Case 10

Failure to assess patient before final administration check and lack of knowledge of correct blood-handling procedures

A unit of blood was left in a satellite fridge after being spiked with a giving set since a decision was taken that the patient was unfit for the transfusion at the time of the pre-administration bedside check. The transfusion laboratory received a phone call at 10.00 hours the following day requesting advice as to whether the unit was still safe to transfuse.

Blood Service adverse events *n* = 6

- No date on Radsure label.
- CMV negative platelets not labelled as such.
- Red cells issued in a container without ports.
- Incorrect red cell phenotype delivered.
- Crossmatch line not heat-sealed at the base.
- Error in reporting anti-D quantification.

COMMENTARY

While many of the learning points from this analysis have already been made in the main chapters of this report, several aspects merit mention here.

Firstly, with respect to sample labelling, the highest proportion of errors have been made by doctors who are not, under routine circumstances, expected to undertake this task. While all FY1 doctors must be assessed for venesection, it would appear that not all have been trained and competency assessed for this task with the rigor required by NPSA SPN 14.[1]

There were a total of 9 instances where the nurses had 'spiked' the blood before either starting the final administration check or ensuring that it was appropriate to transfuse the patient at that given time. This practice is wasteful of blood and contravenes the process of administering blood as documented in the BCSH guideline on the administration of blood components.[2]

It is also apparent that there is considerable blood wasted when it is transferred with the patient and is not packaged in accordance with validated policies to ensure component quality and safety. This practice should be rare and only considered when the patient is actively bleeding and is being escorted by a medical escort to a specialist unit.

Finally, there is evidence that clinical staff are not aware of, or disregard, the correct storage conditions for blood components and are not familiar with the procedures to be followed in the event of satellite fridge alarms.

Recommendations

- All Trusts must ensure that medical staff are trained and competency assessed for taking blood samples in accordance with the requirements of NPSA SPN 14.[1]

  Action: Deaneries, clinical risk managers, HTTs

- Education for staff involved in the transfusion process should include knowledge of the correct storage conditions for all blood components.

  Action: HTTs

- Each Trust should possess a policy and procedure for the transfer of blood components with a patient which reflects the guidance given by the NBTC and the NHSBT Appropriate Use of Blood Group.[3]

  Action: HTCs