Near Miss Reporting (NM) 7

Author: Alison Watt

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.

DATA SUMMARY
Total number of cases: 980

Implicated components		Mortality/morbidity	
Red cells	0	Deaths due to transfusion	0
FFP	0	Deaths probably/likely due to transfusion	0
Platelets	0	Deaths possibly due to transfusion	0
Cryoprecipitate	0	Major morbidity	0
Granulocytes	0	Potential for major morbidity (Anti-D or K only)	0
Anti-D Ig	0		
Multiple components	0		
Unknown/Not applicable	980		

Gender		Age		Emergency vs. routine and core hours vs. out of core hours		Where incident took place	
Male	350	≥ 18 years	846	Emergency	0	Emergency Department	87
Female	566	16 years to <18 years	8	Urgent	0	Theatre	12
Not known	64	1 year to <16 years	26	Routine	0	ITU/NNU/HDU/Recovery	50
		>28 days to <1 year	10	Not known	980	Wards	302
		Birth to ≤28 days	40			Delivery Ward	0
		Not known	50	In core hours	730	Postnatal	0
				Out of core hours	218	Medical Assessment Unit	11
				Not known/Not applicable	32	Community	2
						Outpatient/day unit	15
						Hospice	1
						Antenatal Clinic	35
						Hospital Transfusion Laboratory	242
						Obstetrics	89
						Other/Unknown	134

The 980 near misses in 2012 represent a reduction of 100 from 1080 reported in 2011.

Category of incidents	Number of cases	Percentage of cases
Clinical errors	694	70.8%
Laboratory errors	284	29.0%
Blood Establishment errors*	2	0.2%
Total	**980**	**100.0%**

**red cells labelled as irradiated, but the indicator label showed they were not; red cells in a satellite pack which had no port for administration.*

Table 7.1: Numbers of near misses originating in clinical or laboratory areas

Near misses are often dangerous errors that could have serious consequences if not detected. Detection of 'near miss' incidents may be enhanced by a good quality management system (QMS), but quite often the discovery is made by chance. They should not be discounted as trivial incidents and SHOT encourages continued reporting and investigation of 'near misses' as many important lessons can be learned.

Learning point

- 'Near miss' events should be treated with the same level of concern as all other incidents and, as appropriate, should be fully investigated for root causes with appropriate corrective and preventative actions applied

The near misses have been analysed this year in two broad categories 'Clinical' and 'Laboratory'. This will allow 'near misses' to be compared more easily to the incidents discussed in other chapters.

Clinical errors n=694

Table 7.2: Clinical errors according to category

Category of clinical errors	Number of cases	Percentage of cases
Sample errors	534	76.9%
Request errors	42	6.1%
Component collection/administration errors	62	8.9%
Cold chain errors	38	5.5%
Other = clinical anti-D immunoglobulin errors*	18	2.6%
Total	**694**	**100.0%**

**Clinical anti-D 'near miss' cases show the same issues as discussed in Chapter 15 (Adverse events related to anti-D immunoglobulin).*

Sample errors n=534

Table 7.3: Sample errors

Category of sample errors	Number of cases	Percentage of cases
Wrong blood in tube (WBIT)*	505	94.6%
SHOT-reportable sample labelling errors	28	5.2%
Other (Case 1)	1	0.2%
Total	**534**	**100.0%**

**Includes 2 full blood count (FBC) 'wrong blood in tube' errors where transfusions nearly took place based on the incorrect results.*

SHOT does not require reporting of sample labelling errors that are detected by the quality system at the first opportunity, i.e. at 'booking-in' of the sample. Therefore, the SHOT-reportable sample labelling errors (n= 28) were incidents where the samples had incorrect patient identifiers, but were not detectable until later in the process; often at the bedside when the labelling on the component issued did not match the patient's identity band. A recommendation is made about continuing to monitor poor sample labelling and zero tolerance.

The sample error defined as 'other' was an incident (Case 1) which showed there might be problems implementing the group check sample requirement as suggested in the new British Committee for Standards in Haematology (BCSH) Guidelines for pre-transfusion compatibility testing[35].

Case 1: An attempt to circumvent group check sample (2 sample) requirement

A single sample was decanted into two bottles and labelled as being taken 40 minutes apart. This was discovered when the laboratory noticed both samples showed the same level of haemolysis.

Learning point

- Improved communication is needed between laboratories and the clinical area to ensure the request for a second group check sample is fully understood as a safety check to confirm that the patient has been correctly identified and will be transfused with the appropriate group blood

Callum et al[36] have described their experiences in Toronto, Canada, where using the term of 'second sample' prompted the practice of simultaneous collection of two transfusion samples. Therefore, the terminology was changed from 'second sample' to 'group check'.

Learning point

- The phrase 'group check sample' should be used in preference to 'two samples' to reinforce the positive message of independently taken samples

Case 2: Patient asked to confirm identification details which were incorrect

A long-term patient had two records in the patient administration system (PAS) with different dates of birth. She became irritated and then non-compliant after being asked many times to confirm the wrong date of birth, so began confirming both dates, resulting in the details being changed incorrectly in the laboratory information management system (LIMS).

Learning point

- Positive identification techniques should be used, requiring the patient to give their details, such as date of birth, not merely to confirm the date of birth already on their record, and the reasons explained to the patient

Wrong blood in tube n=505

Definition of 'wrong blood in tube' incidents:

- Blood is taken from the wrong patient and is labelled with the intended patient's details
- Blood is taken from the intended patient, but labelled with another patient's details

An additional group of 'wrong blood in tube' incidents (n=27/505, 5.3%) have been included this year. These were samples recalled prior to testing, because the sample taker realised their error. In previous years such incidents were withdrawn, but no laboratory quality system could guarantee detection of these errors, so they are now included.

'Wrong blood in tube' errors are serious incidents that could result in death due to incompatible transfusion. In the clinical section of the 'incorrect blood component transfused' chapter (Chapter 9) a total of 6 incidents are reported where an incorrect component was transfused due to 'wrong blood in tube' errors, 2 of which involved ABO incompatible transfusions, which could have caused major morbidity or death.

Table 7.4: Staff responsible for 'wrong blood in tube' incidents

Staff member responsible for taking sample	Number of cases	Percentage of cases
Doctor	223	44.2%
Midwife	95	18.8%
Nurse	91	18.0%
Healthcare assistant	34	6.7%
Phlebotomist	20	4.0%
Medical student	1	0.2%
Other/unknown	41	8.1%
Total	**505**	**100.0%**

Table 7.5: Practices leading to 'wrong blood in tube'

Practices leading to 'wrong blood in tube'	Number of cases	Percentage of cases
Sample not labelled at bedside	232	45.9%
Patient not identified correctly	170	33.7%
Sample not labelled by person taking blood	15	3.0%
Pre-labelled sample used	3	0.6%
Maternal and baby samples transposed*	32	6.3%
Other/unknown	53	10.5%
Total	**505**	**100.0%**

**Includes three reports of twin cord samples being transposed.*

Failure to identify patients properly and systematically at every stage of the transfusion process is a recurring theme throughout the Annual SHOT Reports. This can be the result of the incorrect patient record having been assigned initially.

Cases 3 and 4: Two cases of daughters' samples being labelled with mothers' details

Case 3: A 15 year-old patient was identified with her mother's details, because they had exactly the same name and address. The doctor who took the sample did not check the patient's date of birth, so did not realise the mistake.

Case 4: In an emergency situation, a patient was identified with her mother's details, because she had her mother's credit card in her possession and the police presumed these were her details.

Learning point

- If patients cannot clearly identify themselves, consideration should be given to using emergency identifiers according to local policy, until an accurate identity can be assured. The balance of risks should be fully assessed, because a group check sample on a patient labelled as 'unknown' may be safer than wrong assumptions about a person's identity

The merging of patient information technology (IT) records, such as those held on PAS and LIMS can be responsible for patient misidentifications. These are discussed further in the IT chapter (Chapter 11).

Case 5: Two patient records merged outside the transfusion laboratory

A patient grouped as B RhD positive, but the patient's record showed an archived group of A RhD positive from 15 years ago. A repeat sample confirmed the patient's group really was B RhD positive and the patient's record on the patient admission system had been merged incorrectly.

How 'wrong blood in tube' error was detected	Number of cases	Percentage of cases
During testing	185	36.6%
At authorisation	157	31.1%
Prior to testing	61	12.1%
Sample taker realised	45	8.9%
Further sample differed	29	5.7%
Pre-administration checks	11	2.2%
Results from non-transfusion samples (e.g. FBC)	9	1.8%
Other/unknown	8	1.6%
Total	**505**	**100.0%**

Table 7.6: Circumstances leading to the detection of 'wrong blood in tube'

Potentially other 'wrong blood in tube' errors remain undetected because they do not have a historical group or because the patient suffers no identifiable harm, as they were either never transfused or they fortuitously received units of a compatible ABO group.

Approximately one incorrect blood component is transfused due to a 'wrong blood in tube' error for every 100 near miss incidents.

This proportion of about 1 in 100 has been consistent over the last three years of SHOT reporting, 2010-2012.

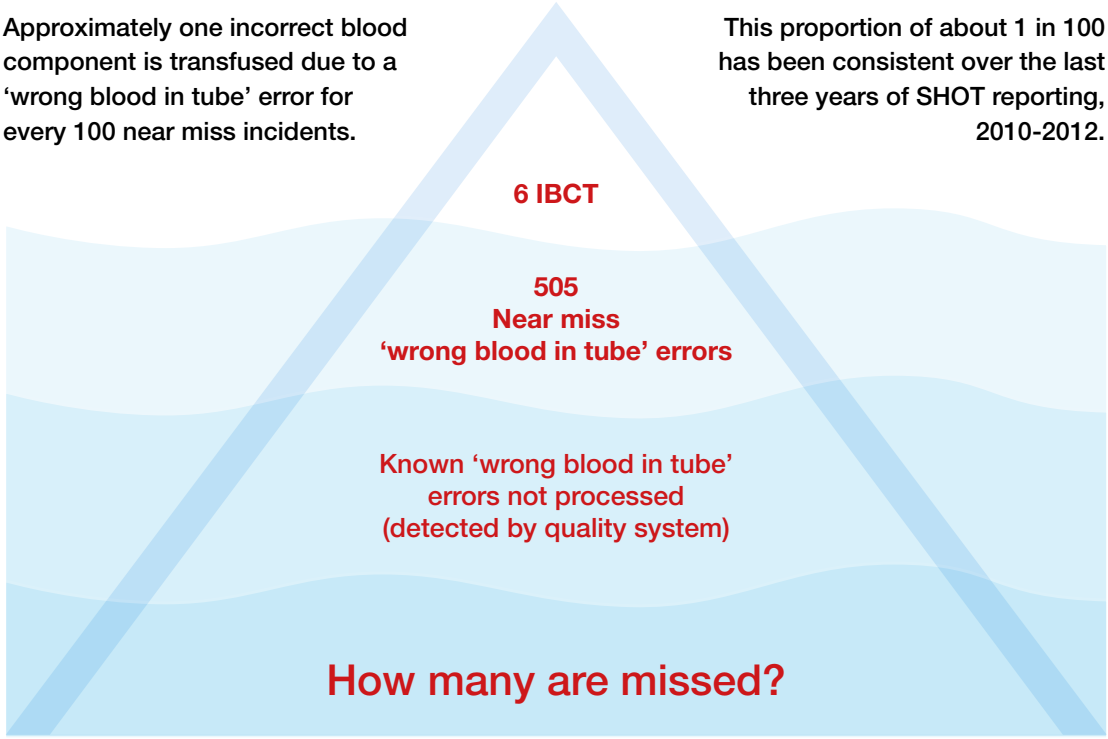


Figure 7.1: Comparison of known 'wrong blood in tube' errors and potentially undetected errors

Request errors n=42

Request errors	Number of cases	Percentage of cases
Specific requirements not requested	30	71.5%
Request based on erroneous test results	3	7.1%
Request for incorrect patient	9	21.4%
Total	**42**	**100.0%**

Table 7.7: Categories of request errors

Specific requirements not requested n=30

Table 7.8: Mode of detection that specific requirements had not been requested

Mode of detection	Number of cases	Percentage of cases
Bedside pre-administration check	17	56.7%
In laboratory	13	43.3%
Total	**30**	**100.0%**

Component collection/administration errors n=62

Table 7.9: Component collection/ administration errors

Collection/administration errors	Number of cases	Percentage of cases
Incorrect units collected by ward staff/porters	43	69.4%
Wrong details on collection slip	16	25.8%
Attempted administration to incorrect patient	3	4.8%
Total	**62**	**100.0%**

Case 6: Patient's identity band changed to match the incorrect blood unit

Particular care was required as two patients were being transfused in the same bay on a haematology ward. The hospital uses single nurse checking of blood, combined with an electronic identification system. Several errors were made and opportunities to detect the problem before it moved to the next error were ignored.

1. *Blood was prescribed for both patients and both prescriptions were on the nurses' station within the bay. The staff nurse requested the health care assistant collect blood for patient X but handed her the prescription for patient Y.*
2. *The nurse checked the blood with the patient's identity band using the electronic bedside verification system and the scanner audibly alarmed to warn that there was a mismatch.*
3. *The nurse contacted the laboratory and was advised that a new identity band should be printed to exclude problems with a corrupted barcode. The nurse used the details on the blood to generate a new identity band.*
4. *This incorrect identity band was applied to the patient without any identification checks. The unit was rescanned and the system now accepted this was the right blood for the identity band scanned.*
5. *Fortunately the patient queried why the blood was not irradiated and on investigation the nurse realised she had the blood for the other patient in the bay.*

Learning point

- Identity bands should only be generated at point of admission with positive patient identification and should not be changed or updated unless it can be shown categorically that the revised identity information is accurate. Replacement of patient identity bands must follow National Patient Safety Agency (NPSA) guidance[37, 38]. Where there is any doubt about a patient's identity in relation to transfusion, a pre-transfusion sample should be retaken for confirmation of identity and group

Errors related to management of the cold chain n=38

Cold chain error	Number of cases	Percentage of cases
Components stored inappropriately	19	50%
Incorrect transport/packing of units	11	29%
Satellite refrigerator failures	4	10.5%
Returned to stock after out of temperature controlled environment >30 minutes	4	10.5%
Total	**38**	**100.0%**

Table 7.10: Errors related to management of the cold chain

Laboratory errors n=284

To enable comparisons to be made, the laboratory errors reported as 'near misses' have been sub-categorised into the same groups as those used in the Laboratory Errors chapter (Chapter 10). The commentary and learning points from these incidents will mostly be the same as those described in that chapter, so further comments will not be added here.

Category of laboratory errors	Number of cases	Percentage of cases
Sample receipt and registration	49	17.2%
Testing	50	17.6%
Component selection	61	21.5%
Component labelling, availability, & handling and storage errors	123	43.3%
Other = analyser misreading sample barcode	1	0.4%
Total	**284**	**100.0%**

Table 7.11: Categories of laboratory errors made

These have been categorised according to the normal flow of routine testing and processing within the laboratory.

Sample receipt and registration n=49

Sample receipt and registration errors	Number of cases	Percentage of cases
Incorrect identifiers entered onto LIMS	23	46.9%
Specific requirements not met (failure to notice information on the request form or the patient's historical record)	20	40.8%
Sample booked under incorrect record*	6	12.3%
Total	**49**	**100.0%**

** includes an incident where two patient records were merged on the LIMS.*

Table 7.12: Sample receipt and registration errors

Testing n=50

Testing errors	Number of cases	Percentage of cases
Transcription errors	16	32%
Incomplete testing	11	22%
ABO & RhD grouping errors (all manual testing)	9	18%
Interpretation	7	14%
Anti-D immunoglobulin issued to RhD positive patient	7	14%
Total	**50**	**100%**

Table 7.13: Testing errors

Component selection n=61

Table 7.14: Component selection errors

Component requirement or specification missed	Number of cases	Percentage of cases
Incorrect component selected	29	47.5%
Anti-D immunoglobulin errors	9	14.8%
Irradiated	9	14.8%
Red cell phenotype	7	11.5%
Cytomegalovirus (CMV) negative	6	9.8%
CMV negative and irradiated	1	1.6%
Total	**61**	**100.0%**

Component labelling, availability, and handling and storage errors n=123

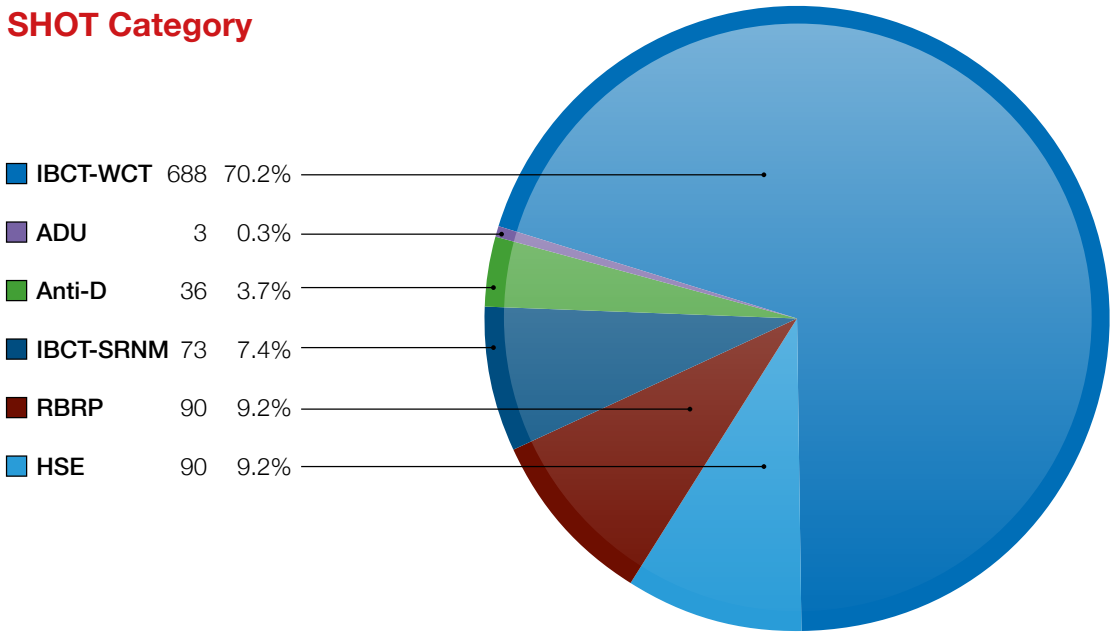
Table 7.15: Component labelling, availability, and handling and storage errors

Component errors	Number of cases	Percentage of cases
Component labels transposed	51	41.5%
Incorrect patient information on label	28	22.7%
Time-expired component available	19	15.4%
Cold chain errors	12	9.8%
Available past dereservation date/time	6	4.9%
Handling and storage errors	4	3.3%
Exceeded BCSH sample timing guidelines[35]	3	2.4%
Total	**123**	**100.0%**

COMMENTARY

Many of the 'near miss' errors give the opportunity for the same lessons to be learned as incidents reported in other categories. If the 'near misses' had progressed to full incidents and components had actually been transfused, they would have been categorised as shown in Figure 7.2.

Figure 7.2: Categorisation of all 'near misses' according to SHOT definitions



The total number of 'near miss' reports analysed in 2012 was 980, compared to 1080 in 2011. The percentage of 'wrong blood in tube' incidents rose from 43.4% (469/1080) in 2011 to 51.5% (505/980) in 2012. Continued reporting of 'near misses' should be strongly encouraged because important lessons can be learnt for safer practice.

It is known that the incidence of sample labelling errors is very much higher than it appears in the SHOT data, where only the most serious potential hazards have been reported. This is an important issue and the quality implications should be monitored by local audit. There should be zero tolerance of mislabelled samples, not only in transfusion laboratories, but across all pathology disciplines, because of the risks associated with assigning diagnostic results to a misidentified patient. Incidents of incorrect haemoglobin results leading to inappropriate transfusion are analysed in the 'avoidable, delayed or undertransfusion' chapter (Chapter 12).

The new BCSH guidelines for pre-transfusion compatibility testing[35] recommend the use of a second group check sample. Good communication between all parties will be needed in order to get the most benefit from this extra safety measure as recommended in these BCSH guidelines:

'Unless secure electronic patient identification systems are in place, a second sample should be requested for confirmation of the ABO group of a first time patient prior to transfusion, where this does not impede the delivery of urgent red cells or other components.'

Communication will be particularly vital in circumstances where the situation is judged to be too urgent to wait for a group check sample.

Recommendations

- Laboratory and clinical areas should continue to report 'near miss' errors, as these are a useful indication of potential failings, allowing corrective and preventative actions to be taken before any harm is done

Action: Hospital Transfusion Committees (HTC)

- There should be zero tolerance of sample labelling errors across all pathology disciplines (see also Chapter 12) and local audits of sample labelling should continue to be undertaken to identify the ongoing risks of patient misidentification

Action: Chief Executive Officers of Hospitals, Trusts/Health Boards, Pathology Laboratory Managers

- There should be strict adherence to the requirement for a group check sample on patients without a historical blood group as detailed in the British Committee for Standards in Haematology (BCSH) guidelines for pre-transfusion compatibility testing[35]

Action: Hospital Transfusion Committees (HTC)

Recommendations from previous years are available in the Annual SHOT Report 2012 Supplement located on the SHOT website, www.shotuk.org under SHOT Annual Reports and Summaries, Report, Summary and Supplement 2012.