15a Near Miss - Wrong Blood in Tube (WBIT) n=899

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Definition:

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.

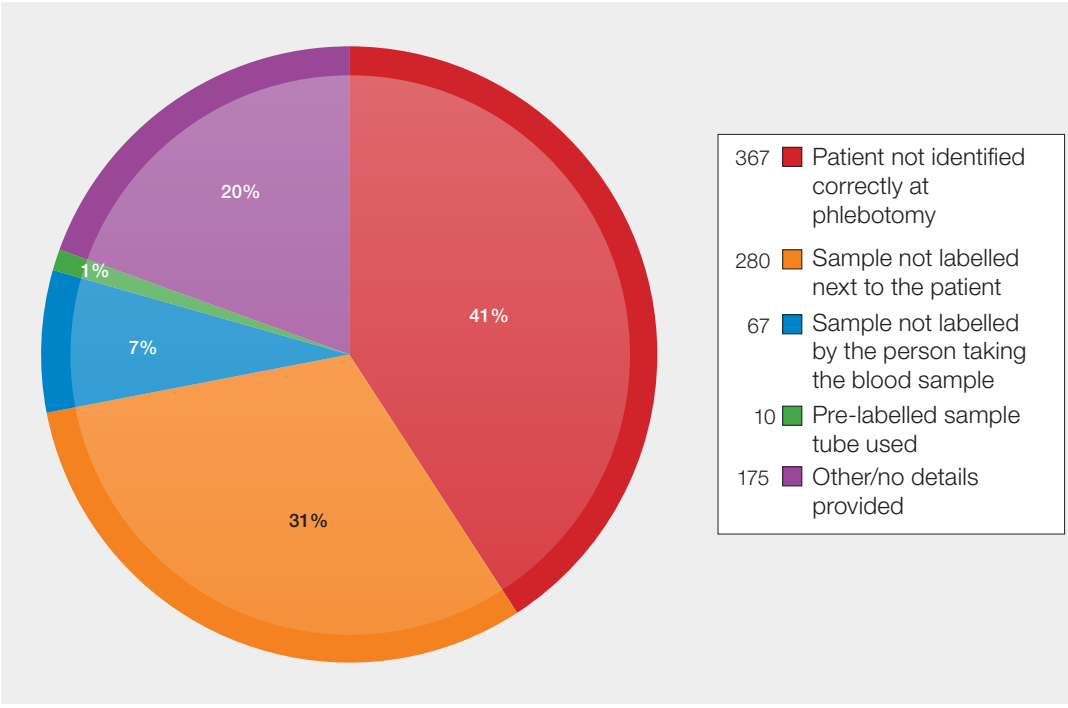
Introduction

WBIT reports continue to represent the largest proportion of near miss (NM) events reported to SHOT, 899/1408 (63.8%). However, for the first time in the last 4 years there has been a decrease in the number of WBIT events (2023 n=986, 2022 n=890, 2021 n=734).

Causes of error

As in previous years, WBIT errors resulted from the same two leading causes: failure to identify the patient correctly at phlebotomy, 367/899 (40.8%), or labelling the samples away from the patient, 280/899 (31.1%) (Figure 15a.1). Notably, both errors occurred together in 169/691 (24.5%) with or without additional errors in the same event.

Figure 15a.1: Primary errors leading to WBIT in 2024 (n=899)



Most sample labels were handwritten, 733/899 (81.5%) compared to electronic labelling, 108/899 (12.0%). There were 58 cases where this information was not provided.

Case 15a.1: Multiple errors contributed to the misidentification of a sample

Patient 1 in the emergency department (ED) required a red cell transfusion and was identified by an incorrect bed space number instead of their name. During a single venepuncture, the doctor took both a group and screen sample and a confirmatory sample from patient 2, with no positive patient identification performed. The doctor labelled the first sample away from the patient's side using patient 1's details. They then asked a nurse to label the second sample and send it to the laboratory. The error was finally detected when the blood samples were rejected by the transfusion laboratory. Patient 1

had a historical group of O D-negative with positive red cell antibodies, while the current samples grouped as AB D-positive.

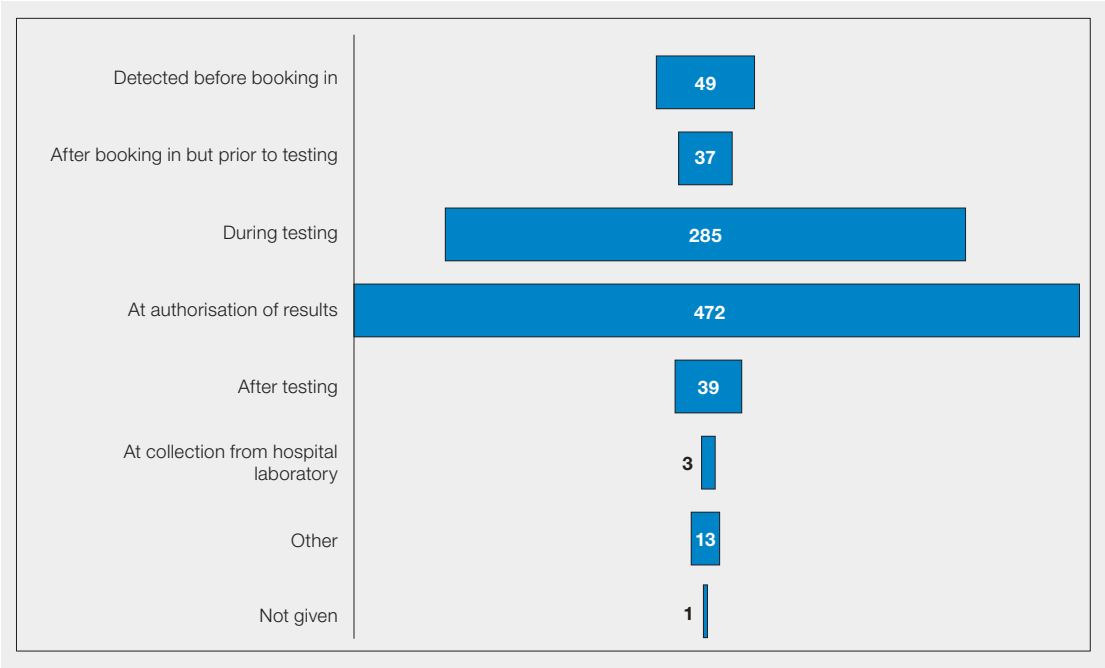
This case highlights multiple errors in positive patient identification and sample labelling procedures which could have resulted in an ABO-incompatible (ABOi) red cell transfusion. The first and the confirmatory samples for group and screen should be taken at different times, preferably by different staff. The person taking the sample should be the person that labels it, and this must be done next to the patient. In this case, all three of the most common causes of errors as shown in Figure 15a.1 were present.

Point of detection

Most errors were detected during laboratory testing or at authorisation of results, 757/899 (84.2%) (Figure 15a.2). In 95 WBIT cases, the clinical team fortuitously identified the error and contacted the laboratory team. In most of these, 73/95 (76.8%), the laboratory was informed before testing the sample.

In 2024, as in previous years, some SHOT reports identified cases where the initial error occurred some years ago (historical WBIT). These events could only be detected due to the confirmatory sample, showing the importance of this requirement in transfusion safety.

Figure 15a.2: Point in the process where the error was detected in WBIT reported in 2024 (n=899)



ABO-incompatibility

In 448/899 (49.8%) WBIT cases, details of both the blood group of the patient and of the intended blood component were provided. In 184/448 (41.1%) cases, if the WBIT had not been detected, the patient could have received an ABOi red cell transfusion with a risk of serious harm or death (Table 15a.1).

Table 15a.1: Potential for ABO-incompatible transfusion in 2024

		Group of the blood component that might have been transfused					
		A	B	AB	O	Compatible	Incompatible
Patient blood group	A	31	26	7	106	137	33
	B	26	9	3	36	45	29
	AB	8	4	2	11	25	0
	O	79	32	11	57	57	122
	Totals	**144**	**71**	**23**	**210**	**264**	**184**

Errors in maternity cases n=349

Cases from maternity departments accounted for 349/899 (38.8%) of the total of WBIT reports (a slight decrease from 388 in 2023 and 369 in 2022). A large proportion of WBIT from maternity cases were attributed to midwives, accounting for 258/349 (73.9%), followed by healthcare assistants at 26/349 (7.4%). The largest number of WBIT events related to all areas of pregnancy and childbirth (classified as 'maternity') were noted in obstetrics, comprising 205/349 (58.7%), followed by antenatal clinics, 85/349 (24.4%). Additional cases were recorded in community hospitals/clinics, 17/349 (4.9%), general practice surgeries, 5/349 (1.4%), and 6 instances occurred at the patient's home.

In maternity cases, patients not being identified correctly at phlebotomy was the primary error in 133/349 (38.1%) cases, samples not being labelled next to the patient in 118/349 (33.8%) cases and samples not being labelled by the person who took the sample in 29/349 (8.3%) cases. In 3 maternity reports the primary error was use of a pre-labelled sample tube. Handwritten labelling in maternity cases represented 302/349 (86.5%) of the WBIT reports, while electronic devices were used in 28/349 (8.0%) to label the sample.

It is crucial to exercise care and to correctly identify patients; 123/349 (35.2%) of maternity cases involved patients without an identity band in place, and 11/349 (3.2%) maternity incidents were attributed to factors such as confusion, sedation or communication barriers for individuals who were not English speakers. A further 24/349 (6.9%) cases involved patients with the same or similar name.

Errors may appear concentrated in specific staff groups simply because they are the ones commonly performing certain tasks and hence may be overrepresented in the reported cases. It is important to note that variable reporting levels with degrees of under-reporting from some areas, and the fact that SHOT is a passive haemovigilance system, means that caution must be exercised when interpreting these results. Staff are encouraged to review WBIT locally and identify areas for improvement.

Case 15a.2: Language barrier contributes to inaccurate patient identification

A patient was referred with incorrect details, which were used to update their electronic patient record. An interpreter assisted during the antenatal clinic visit, but it was unclear whether the patient confirmed their name and date of birth or if their details were checked. There was no evidence of positive patient identification at phlebotomy leading to a WBIT which was identified during testing based on discrepancies with their previous results.

Positive patient identification and timely labelling of samples next to the patient are crucial for patient safety, particularly for mother and cord samples. Numerous sample transpositions were identified during testing. These included:

- Mother and cord mix-ups (n=42), 2 identified through high-throughput non-invasive prenatal testing for fetal *RHD* genotype (cffDNA) discrepancies
- Confusion in sampling twins (n=4)
- Samples taken from the wrong placenta (n=3)

Errors in non-maternity cases n=550

Non-maternity WBIT cases represented more than half of the total of WBIT reported to SHOT, 550/899 (61.2%). In non-maternity cases, 431/550 (78.4%) sample labels were handwritten, and 80/550 (14.5%) samples were electronically labelled.

Emergency department n=160

Reports from the ED accounted for 160/550 (29.1%) in non-maternity settings and represented the largest number of WBIT events reported in a single non-maternity department. Of these, 121 samples were handwritten and 24 were labelled using electronic devices (unknown in 15).

There were 130/160 (81.3%) cases from the ED where the staff group involved in collecting WBIT transfusion samples was provided. The most frequently reported staff group were nurses accounting for 73/130 (56.2%) of the events, 71 from registered nurses and 2 from student nurses. This staff group was followed by medical staff identified in 30/130 (23.1%) events and healthcare assistants in 21/130 (16.2%).

Wards n=237

The highest proportion of errors were reported from wards, 237/550 (43.1%) likely because this includes a wide range of locations and specialities across healthcare organisations.

When assessing the staff groups who were involved in the WBIT events, 99/237 (41.8%) were samples taken by nurses, 54/237 (22.8%) by doctors, 21/237 (8.9%) by healthcare assistants, and 17/237 (7.2%) by phlebotomists.

Human factors

Review of the responses provided in the SHOT Human Factors Investigation Tool (HFIT) showed that situational factors had the biggest impact on the WBIT events.

Table 15a.2: Human factors identified as the most important contributory factors for the WBIT events in 2024

	Emergency department (n=142)	Wards (n=204)	Maternity (n=306)
Communication and culture	15 (10.6%)	29 (14.2%)	42 (13.7%)
Local working conditions	28 (19.7%)	38 (18.6%)	63 (20.6%)
Situational factors	70 (49.3%)	108 (52.9%)	161 (52.6%)
Organisational factors	29 (20.4%)	29 (14.2%)	38 (12.4%)
External factors	0 (0%)	0 (0%)	2 (0.7%)

The most commonly reported situational factor was ‘mismatch between workload and staff’, 227/899 (25.3%). Both non-maternity cases from ED and maternity cases reported that their environment hindered their work, 120/509 (23.6%). Wards cited the ‘incident was more likely to occur with the particular staff involved’, 64/237 (27.0%). More information on the human factors findings can be found in the supplementary data, which includes cases of corridor care and lack of adequate space for safe practice.

Conclusion

For the first time in 4 years, the number of reported incidents of WBIT has decreased. Data from HFIT has highlighted several challenges faced by healthcare providers, including difficulties caring for patients on trolleys in corridor settings with limited space, and the distractions of working in crowded and noisy

environments. Additionally, issues such as the lack of essential equipment or malfunctioning devices, such as printers, have been reported. Staffing pressures and inadequate training have been cited as factors leaving staff overwhelmed, which can increase the risk of oversight and error. WBIT can result in ABOi transfusions and must be prevented to enhance safety.

Recommended resources

Pre-transfusion Blood Sampling Process
https://www.youtube.com/watch?v=Vq3R3mQW-9A

Webinar on accurate and complete patient identification for safe transfusion in adults
https://www.shotuk.org/resources/webinar-on-accurate-complete-patient-identification-for-safe-transfusions-in-adults/

Webinar on accurate and complete patient identification for safe transfusion in paediatrics
https://www.shotuk.org/resources/webinar-on-accurate-and-complete-patient-identification-for-safe-transfusion-in-paediatrics/

Wrong Blood in Tube (WBIT) investigation template
https://www.shotuk.org/resources/wrong-blood-in-tube-wbit-investigation-template/