2023 Annual SHOT Report – Supplementary information

Chapter 10: Incorrect Blood Component Transfused (IBCT)

Additional analysis not included in the main 2023 Annual SHOT Report.

ABO-incompatible (ABOi) transfusion case studies

Case 10.5: Communication failure at handover leads to ABOi transfusion

Patient A, with group O D-positive blood, being treated for a malignancy, required a routine transfusion but was given group B D-negative red cells in error. The ward was very busy with multiple patients requiring transfusions concurrently, general admissions and further patients arriving from the haematology clinic for treatment. A nurse was providing cover for another nurse on their break. During the handover, the second nurse misunderstood which patient the blood that had been requested for. The red cells had been requested for patient B but when they arrived on the ward, they were taken to patient A's bedside. A two-person independent check was carried out but not completed correctly and the patient's identity was not verified. The patient's observations were checked, and the transfusion commenced.

When the nurse checked the patient's observations at 15 minutes the error was detected, and the transfusion stopped immediately. The patient had received less than 50mL of the incorrect red cells and they developed rigors but recovered fully.

The staff had been rushing as they were busy and had made incorrect assumptions about which patient the transfusion was intended for. Since this incident, the unit has changed the process where multiple transfusions are ongoing to reduce the risk of such an incident recurring.

Case 10.6: Incorrect unit collected leading to ABOi transfusion

A patient with blood group O, had COVID-19 and sepsis, required an emergency transfusion, but was given group A red cells in error. Nurse 1, the patient's allocated nurse handed over care to nurse 2 and went for a break. Nurse 2 requested the first unit of red cells to be collected from the laboratory and delivered to the unit urgently. The incorrect unit of red cells was collected from the transfusion laboratory and delivered to the department by the porter. They were rushing, saw the correct surname but did not check the full patient details.

The patient was in an isolation room and personal protective equipment was needed prior to entry. The red cells were handed to the nurse outside of the patient's room. It was a highly stressful situation, where the clinicians believed that the patient was peri-arrest and required an immediate transfusion. When inside the patient's room they checked the prescription for the red cells against the patient's wristband and checked the expiry date of the unit. They did not check the patient's identification band. The yellow label warning of another patient with a similar name had not been noticed by the porter or the nurses.

Nurses had called the consultant to review the patient and he noticed that the first name on the red cell unit was not that of the patient. At that point, 56mL of incorrect red cells had been given over a 3-minute period. The transfusion was stopped immediately. The patient died 3 days later due to sepsis and COVID-19. His death was unrelated to the transfusion.

There was significant pressure to start the transfusion as the patient seriously unwell and the doctor wanted the transfusion to commence prior to intubating the patient. There was a 20% staff shortage in the department at the time of this incident. This incident highlights the extreme pressures NHS staff are working under in the current climate.

Case 10.7: Difficult pre-administration checks lead to ABOi transfusion

A known haematology patient, with chronic transfusion dependent anaemia, blood group O, was admitted to the medical day-case unit for a transfusion of two units of red cells. The first unit was administered uneventfully. When the second unit was to be transfused the correct collection process was not followed by the clinical staff, only the surname of the patient was checked. They did not cross check the details with prescription/collection form and compatibility slip. There happened to be two patients with the same surname receiving red cell transfusions at that time, but they were on different wards.

The bedside pre-administration checks were not undertaken correctly by the two nurses. The only checks undertaken were between the patient's identification band and prescription. Transfusion of a unit of group A red cells was then commenced. The patient had received approximately half of the unit when they became acutely unwell with rigors and vomiting. The transfusion was stopped immediately by nursing staff and the patient was reviewed by a consultant physician, and the haematology consultant was contacted and involved immediately. The patient subsequently developed an acute haemolytic transfusion reaction. They were admitted as an inpatient for close observation under the care of the haematology and renal teams due to the development of acute kidney injury.

This was a routine transfusion but communication with the patient was difficult, and this distracted them from completing the correct pre-administration checks.

Case 10.8: Use of wrong pick-up slip leads to an ABOi transfusion

Patient A, with group O blood, being treated for liver disease, required an emergency transfusion during a cardiac arrest, but was administered group A red cells in error.

A nurse gave the healthcare assistant (HCA) a pick-up slip and they collected the unit of red cells from the main blood refrigerator and brought it to the ward. The red cells were run through the giving set by one nurse and handed to another nurse to connect to the patient's intravenous line. The electronic blood-tracking system was not used to scan either the patient's identification band or the unit of red cells prior to setting up the transfusion. The nurses involved did not do a visual check of the labels or the unit. No manual pre-administration checks were carried out and the patient's identity was not confirmed before the transfusion was commenced. Another member of staff noticed that the compatibility label on the unit was for a different patient, and the transfusion was stopped immediately. Most of the unit had already been transfused. The patient was then given a unit of emergency O D-negative red cells. The patient later died but this was not attributed to the transfusion error.

This error occurred because another patient had required a transfusion earlier and the HCA had collected that unit from the blood refrigerator but had not disposed of the pick-up slip correctly in the confidential waste in the transfusion laboratory. During the emergency, the nurse had inadvertently reached for that same pick-up slip and given it to the HCA to collect the unit. This was a very pressurised situation and the correct pre-administration checks were not carried out, if they had been, the error would have been identified earlier and the patient would not have received an ABOi transfusion.

There was only one registered nurse rostered to work on the ward on this shift, who had completed their blood administration competency. The number of staff on the shift were the correct numbers for this clinical area, but the specific skill mix was lacking for the acuity of the patients on the ward that night. One nurse was working overtime to ensure enough staff were on duty, and another was an agency nurse. The continuous staffing and skill mix issues on this ward had been highlighted previously.

Case 10.9: Collection of the wrong unit leads to ABOi transfusion

Patient A, with blood group O, required a routine red cell transfusion for treatment of anaemia. A porter incorrectly collected red cells from the blood issue refrigerator for patient B, despite the patient identification details on the blood collection form being for patient A. The porter took the red cells to the clinical area that had requested the red cells for patient A, and the nurse administered the unit to patient A.

The blood collection form was handwritten, and the two patients had similar names, but different dates of birth and unique identification numbers. Patient A had not had a crossmatch carried out, so there was only a unit of red cells available for patient B. The transfusion was completed without incident and there was no harm to the patient.

Patient A had a repeat group and screen 6 days later and at this time the transfusion laboratory staff contacted the haemovigilance practitioner (HVP) to inform them that patient A had received a unit of red cells, but there were no blood products issued for them historically. When the HVP reviewed the patient A's medical records it was realised that the unit of red cells patient A received was intended for patient B.

Complete pre-administration checks were not carried out. Had the checks been performed correctly they would have noticed that the patient's identification band did not match the blood component documentation. The ward had been short-staffed in the time leading up to the incident and there were fewer porters on duty at that time of the day. The nurse had felt overwhelmed with their workload at the time. The culture on the ward put staff under pressure to complete all tasks before handover to the next shift. Patient A and patient B had similar names but patient A who received the transfusion never had any red cells crossmatched in this incident therefore the blood bank alert stickers that were used for patient's with similar names were not used. If patient A had been crossmatched for red cells, then the porter would have been alerted to the fact there was another patient with a similar name requiring a unit of red cells in the hospital.

Overview of IBCT-WCT data

Figure 10.9 shows a summary of potential outcomes resulting from errors in the transfusion pathway.

Fig 10.9: ABOi transfusions and events that had the potential to lead to ABOi reported in 2023

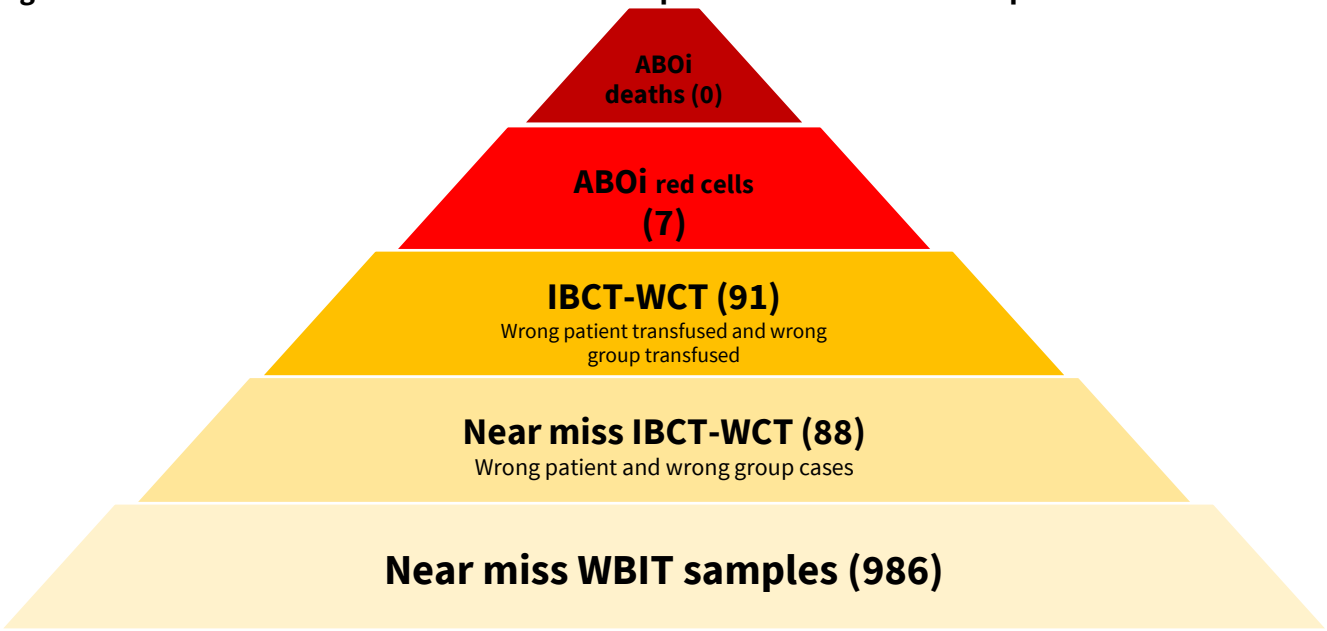

Table 10.4 shows categorisation of IBCT-WCT errors for both clinical and laboratory errors. The most common clinical error is wrong patient transfused, and the most common laboratory error is wrong group to transplant patient.

Table 10.4: IBCT-WCT error categorisation for clinical and laboratory errors

Outcome of WCT error	Clinical	Laboratory	Total
Total wrong group	**17**	**60**	**80**
ABOi	5	2	**7**
Wrong group for transplant patient	8	28	**36**
Wrong ABO group (compatible)	2	16	**18**
D-mismatch	1	14	**15**
Wrong blood in tube	1	0	**1**
Total wrong component	**15**	**7**	**22**
Wrong component type	12	2	**14**
Adult unit to neonate	3	4	**7**
Component not HT-negative	0	1	**1**
Total wrong patient	**18**	**3**	**21**
Wrong patient transfused	14	3	**17**
ABOi	3	0	**0**
Wrong blood in tube	1	0	**1**
Miscellaneous	**0**	**1**	**1**
Total	**50**	**71**	**121**

Overview of IBCT-SRNM data

Table 10.5 shows categorisation of IBCT-SRNM errors for both clinical and laboratory errors. The most common clinical error is failure to provide irradiated components, and the most common laboratory error is incomplete testing.

Table 10.5: IBCT-SRNM error categorisation for clinical and laboratory errors

Specific requirement	Clinical	Laboratory	Total
Incomplete testing	0	44	**44**
Incorrect phenotype	8	33	**41**
Inappropriate EI	1	31	**32**
Not irradiated	54	17	**71**
Sample not valid	3	11	**14**
K-positive to patient of childbearing potential	1	11	**12**
Not CMV-negative	9	4	**13**
Not HLA-matched	1	3	**4**
Not <10 days old	0	1	**1**
Blood warmer not used	2	1	**3**
Total	**79**	**156**	**235**

Additional IBCT laboratory case studies

Case 10.10: Incorrect ABO red cells transfused to post solid organ transplant patient due to not heeding IT alerts

The patient (blood group A D-positive) was transplanted a liver (blood group O D-negative). Two weeks post transplant the patient had a positive DAT with IgG 2+ and cross-matching was found to be incompatible with all group A D-positive red cells. The sample was referred to the reference centre for elution studies as part of querying possible passenger lymphocyte syndrome (PLS) investigation. Reference centre reported Anti -A1 antibody was detected in an eluate prepared from the patient's red cells. Patient's special requirements were updated on the pathology IT system to issue group O D positive blood until the PLS resolved. A week later the BMS on call issued two group A D-positive red cells without checking the specific requirements on the pathology IT system. Units were crossmatched as serologically compatible but should have been group O D-positive. Staff member failed to follow the correct requirements and laboratory procedure. Patient was transfused both units of red cells and is currently stable without evidence of haemolysis.

Case 10.11: Red cell units transfused to a sickle patient which did not meet specific requirements

Two red cell units were issued and transfused to a sickle patient, which did not match the Rh and K phenotype specific requirements. Rh and K phenotype was not performed by the BMS prior to the issue of red cell units to a known sickle cell patient new to the organisation. The patient typed as group O D-positive. The patient was male, so the BMS decided to select K-positive, O D-negative units (rr) HbS-negative. RhK type was performed the next day, and the patient typed as C-e-K- (probable R2R2). On reservation and issue of the red cell units, the LIMS did flag to state that the patient had sickle cell disease. This flag was

acknowledged by the BMS, as the unit was selected as HbS-negative. But as the RhK phenotype had not been performed prior to issue, the RhK phenotype specific requirements were not available in the LIMS to flag a discrepancy between the selected units and the patient's requirements. Investigation felt this highlighted a gap in knowledge of the laboratory staff member and/or inadequate training having been provided. This incident occurred towards the end of a late shift. During this time, there were minimum staff managing the transfusion and haematology departments, prior to hand over to the out-of-hours night shift BMS.

Additional IBCT clinical case study

Case 10.12: Platelets transfused to the wrong patient

Patient A with acute myeloid leukaemia in an emergency assessment unit (EAU) was prescribed platelets. They were prescribed, issued and collected for the correct patient but were administered to patient B. The complete unit had been transfused before the error was realised. The two patients were in separate cubicles next door to each other and had similar illnesses. The nurses involved did not follow the correct positive patient identification checks prior to administration. Some checks were completed outside of the cubicle and only one of the nurses entered the cubicle to administer the platelets and they did not check the patient's identification. A bedside checklist was signed by both nurses to confirm the checks had been completed, but these checks were not performed. Patient B did not suffer any ill effects from the transfusion and patient A received their correct transfusion later that day.

Both nurses were in date with their competencies for the administration of blood products. The EAU was short staffed at the time of the incident and a nurse, who had no EAU experience was sent to assist. The nurses that checked the transfusion were preoccupied with their own increased workloads. The unit was very busy, and a nurse had already raised concerns about the skill mix on that day.

Clinical near miss IBCT n=88 (WCT n=74, SRNM n=14)

60/74 (81.1%) of reports involved the component potentially being administered to the wrong patient. The majority 35/60 (58.3%) were detected at the point of administration by vigilant staff whilst conducting pre-administration safety checks, only 22/35 (62.9%) were using a pre-administration checklist.

12/14 (85.7%) where non-irradiated components could have been administered. 1/14 (7.1%) not CMV-negative and 1/14 (7.1%) not phenotyped.

Laboratory near miss IBCT n=65 (WCT n=33, SRNM n=32)

There were 33 wrong components issued by the laboratory which were detected prior to transfusion. These included 15 components issued to the wrong patient, 7 wrong component type issued, 7 wrong group issued, 3 crossmatch-incompatible, and one D-positive to D-negative.

There were 32 components issued by the laboratory that did not meet patient's specific requirement that were identified prior to transfusion. These included 20 units not irradiated, 6 units not CMV-negative, one

incomplete testing, 2 invalid sample, one K-positive to woman of childbearing potential, one not HT-negative, and one not antigen negative.

43/65 laboratory IBCT near misses were detected during pre-administration checks.

24/65 stated an exit check was not used prior to release of units from the laboratory. Unfortunately, 35/65 stated an exit check was used, but they failed to detect the error.

Figure 10.12: NM IBCT-WCT reported to SHOT in 2023 (n=107)

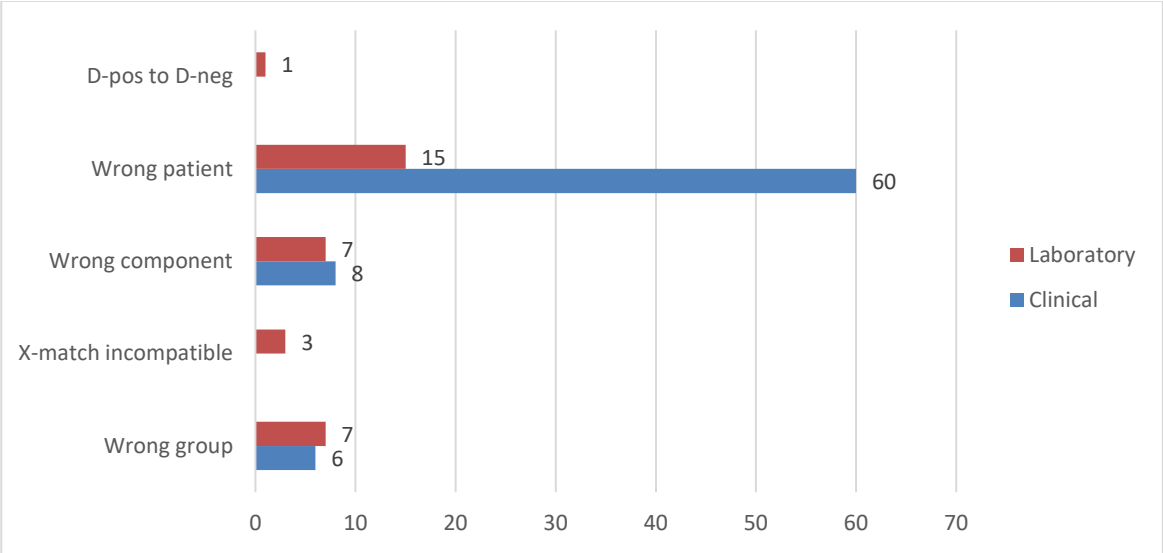

Figure 10.13: NM IBCT-SRNM events in 2023 (n=46)