8 Incorrect Blood Component Transfused (IBCT) n=272

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Definitions:

Wrong component transfused (WCT)

Where a patient was transfused with a blood component of an incorrect blood group, or which was intended for another patient and was incompatible with the recipient, which was intended for another recipient but happened to be compatible with the recipient, or which was other than that prescribed e.g. platelets instead of red cells.

Specific requirements not met (SRNM)

Where a patient was transfused with a blood component that did not meet their specific requirements, for example irradiated components, human leucocyte antigen (HLA)-matched platelets when indicated, antigen-negative red cell units for a patient with known antibodies, red cells of extended phenotype for a patient with a specific clinical condition (e.g. haemoglobinopathy), or a component with a neonatal specification where indicated. (This does not include cases where a clinical decision was taken to knowingly transfuse components not meeting the specification in view of clinical urgency).

Key SHOT messages

Clinical

- A robust checking process at the administration step immediately prior to transfusion remains a critical step to support prevention of transfusion of ABO-incompatible blood components

Laboratory

- Key SHOT messages are stated in Chapter 14, Laboratory Errors

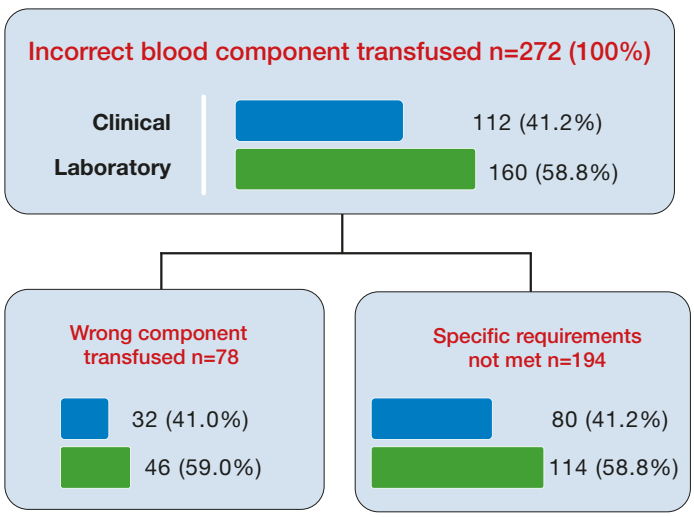


Figure 8.1: Overview of reports where an incorrect blood component was transfused in 2018 n=272

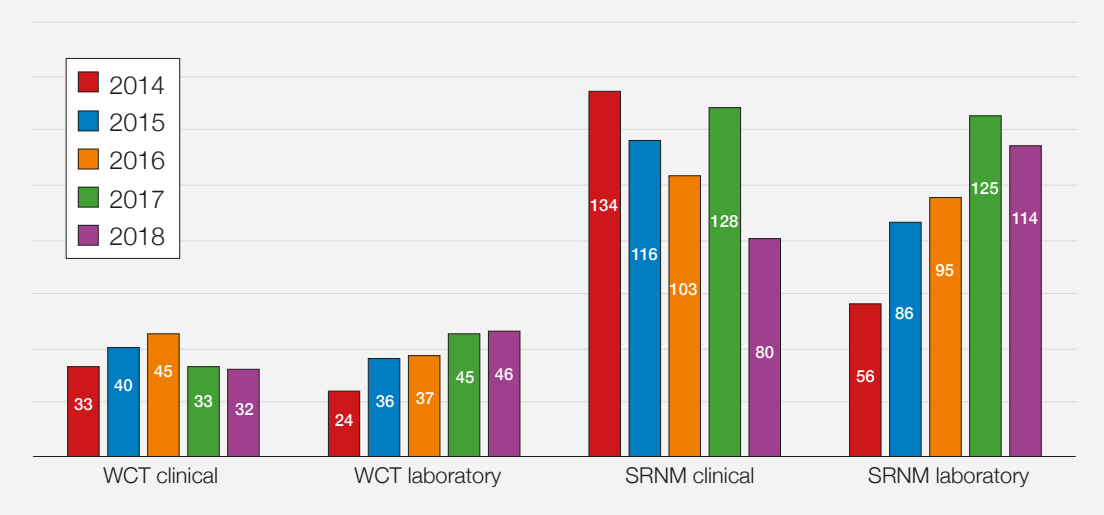


Figure 8.2: Review of IBCT reports over a 5-year period

WCT=wrong component transfused; SRNM=specific requirements not met

Deaths n=0

There were 17 deaths reported under IBCT (3 incidents due to clinical errors and 14 resulting from laboratory errors), however, none of the deaths were attributable to the transfusion (imputability 0 excluded or unlikely).

Major morbidity n=4 (clinical n=1 laboratory n=3)

Case 8.1: Failure to perform the administration checks at the bedside leads to transfusion of ABO-incompatible red cells and results in major morbidity

The nurse checked the details on the unit of red cells against the prescription with one of the ward doctors. The checks were performed, and the prescription was signed at the nurse's station, not at the bedside. The nurse failed to positively identify the patient, failed to perform any bedside checks and did not ask another trained and competent member of staff to perform the same checks at the bedside. The transfusion was commenced on the wrong patient.

The patient received approximately 50mL of incompatible red cells, (donor group A D-positive, recipient group O D-negative). Symptoms of reaction included; desaturation to SpO2 88%, the respiratory rate increased to 40 breaths per minute and the patient was 'feverish'. The patient was treated with hydrocortisone, chlorphenamine and oxygen and moved to critical care and monitored for organ damage. She remained in critical care for several days before moving back to a general ward and being discharged home.

Multiple factors were identified in the root cause analysis (RCA):

- Short staffing on the ward
- Colleagues offering to help although not competency-assessed
- Breaks not being taken
- Low level of competency-assessed staff
- Failure to escalate increased work load and stress
- Staff unfamiliar with the environment
- Multiple transfusions taking place on the same ward
- Electronic clinical transfusion systems in place but not utilised in the hospital at the administration step

Recommendations from the RCA:

- Review and consider prioritisation of business case for extending the use of the electronic systems at the administration step
- Ensure staff are made aware of who can second check blood components
- Place blood transfusion back onto training days
- Ensure blood transfusion competencies are visible on 'eRoster'

What happened to the patient who the transfusion was intended for? This was reported as a near miss avoidable transfusion. See Case 10b.5 in Chapter 10, Avoidable, Delayed or Under/Overtransfusion (ADU).

Case 8.2: Major morbidity following transfusion of ABO-incompatible (ABOi) red cells due to misinterpretation of manual ABO grouping

Group-specific red cells were requested urgently, during core hours, for a patient with an upper gastrointestinal bleed. No transfusion history was available for the patient at the time of issue. The emergency department (ED) requested group-specific red cells due to the perceived risk to the patient of a delay. Red cells were released prior to completion of the serological crossmatch due to the urgency of the situation. Serological crossmatching identified that the red cells were incompatible. The manual ABO grouping of the patient had been interpreted incorrectly as B D-positive (correct group was A D-positive). A second member of staff was available, but it was not policy to second check the result. No testing on a second sample was undertaken to confirm the group and the policy did not specify issuing group O red cells until a second group was obtained. The biomedical scientist (BMS) did not routinely work in the transfusion laboratory. The patient received approximately 90mL of incompatible red cells and was admitted to the intensive therapy unit (ITU) due to the adverse transfusion event. No further ill effects were observed.

This case highlights the problem of not having a robust policy for emergency issue when incomplete testing has been performed at the time of issuing components based on results from a single sample. It also highlights the importance of a two-person check when validating results and demonstrates the importance of competency and practice familiarity especially related to laboratory staff who do not routinely work in transfusion.

Case 8.3: Interpretation error and inappropriate electronic issue (EI) resulted in the wrong ABO group transfused to a liver transplant patient

Red cells were requested out-of-hours for a patient who underwent an ABO-mismatched liver transplant (patient B D-positive, donor liver O D-positive) in a different centre three weeks earlier. The patient had previously been grouped manually but a historical record was available on the laboratory information management system (LIMS) at the time. The analyser identified anti-B in the patient plasma, but the result required manual interpretation on the LIMS and was misinterpreted as B D-positive. The LIMS then allowed EI when serological crossmatch should have been performed and the electronic tracking system did not alert as the blood issued matched the patient's group. Following transfusion, the patient had a spike in temperature and became tachycardic, tachypnoeic, with an increased oxygen requirement. The transfusing hospital rarely dealt with transplant patients.

Learning point

- Manual interpretation of results during testing should require a second person check for confirmation of results and interpretation, and the laboratory information management system (LIMS) should be robustly validated to exclude electronic issue (EI) when appropriate. It is important that biomedical scientist (BMS) staff understand the transfusion requirements for all types of patient conditions and how to manage anomalous results

This case also highlights opportunities for clearer information to be available for patients where care is shared between different facilities.

The final case of major morbidity involved a woman of childbearing potential who was sensitised to the Kell antigen when K-negative blood was not selected.

ABO-incompatible blood component transfusions n=7

Unintentional transfusion of ABO-incompatible blood components is a National Health Service (NHS) Never Event (NHS England 2018). In Scotland these would be reported as Red Incidents through the Scottish National Blood Transfusion Service clinical governance system and/or those of the Health Board.

There were 4 cases of unintentional transfusion of ABO-incompatible red cells (3 clinical errors and 1 laboratory error) and although the risk of haemolysis and serious harm is more likely with red cells than with other components, there were 3 additional cases (all laboratory errors) of unintentional ABO-incompatible transfusions, 2 of fresh frozen plasma (FFP) and 1 of cryoprecipitate, Figures 8.3 and 8.4.

These provide important lessons for both clinical and laboratory staff. These cases are also reportable as NHS England Never Events.

The ABO-incompatible blood component transfusions are described under Cases 8.1 and 8.2 under major morbidity, Cases 8.4, 8.5, 8.7 and 8.8 below, and Case 8.12 under multiple errors.

Figure 8.3: Clinical ABO-incompatible red cell transfusions n=3

ABOi=ABO-incompatible

Case 8.4: Failure to correctly complete the checking process at the administration step leads to transfusion of ABO-incompatible red cells

A unit of red cells (group B D-positive) was correctly collected, prescribed and delivered to the clinical area. Two registered nurses using a 'dependent check' checked the unit against the laboratory paperwork and prescription but not the patient. The nurse then went to the wrong patient and commenced the transfusion (patient group A D-negative). The doctor on the ward noticed that a transfusion had been commenced on his patient for whom he had not prescribed blood, he investigated and immediately stopped the transfusion.

The investigation revealed that the patient was not wearing an identification band and would not be able to identify himself.

Recommendations from the RCA:

- Amendment made to transfusion pathway to emphasise 'no wristband, no transfusion'
- Update transfusion policy to specify the use of an 'independent' check

This case highlights that the process for checking blood components and positive patient identification immediately prior to administration must be followed and that the use of a bedside checklist could ensure the correct steps in the procedure are followed and avoid any steps being omitted.

SHOT continues to recommend local blood transfusion policies follow national guidelines and if local policy requires a two-person checking procedure, each person should complete all the checks independently (double independent checking) (BSH Robinson et al. 2017).

Case 8.5: Failure of the correct checking process at both collection and administration steps leads to transfusion of ABO-incompatible red cells

The wrong unit of red cells was collected by a healthcare assistant (HCA) from a remote issue refrigerator without any formal checks. The collection slip included the correct patient details for whom the transfusion was intended. The HCA had been trained and competency-assessed to collect blood components, but this had expired. Red cells were taken for another patient with a similar surname.

The nurse on the ward failed to notice the wrong unit of red cells had been collected and then failed to complete the administration checks at the bedside, including failure to positively identify the patient. The patient (group O D-positive) received the full unit of group A D-positive red cells. The patient was admitted overnight as a precaution, no signs of reaction noted and was discharged home the following day.

Contributory factors identified from the RCA:

No distractions or staffing issues were noted. The incident occurred during a Saturday nurse-led service for transfusions only. This was run by bank staff as extra shifts for regular staff from the ward where the patients were treated as in-patients. The investigation cited lack of leadership, a relaxed atmosphere and the repetitive nature of the task as contributory factors leading to this event.

Recommendations from the RCA:

- Explore possibility of electronic system for collection of blood components
- Review the nurse-led Saturday service

This case demonstrates that processes must be followed even when staff know their patients well and everyone is carrying out the same task for all patients. The use of a transfusion bedside checklist could ensure that all steps in the process are performed with all patients every time and positive patient identification (asking the patient to state their name and date of birth, and first line of address in Wales) is an essential step in the process to prevent wrong component transfused.

Identification of patients, samples and blood components throughout the transfusion process can be enhanced using electronic transfusion management systems using barcodes on ID bands and blood components and hand-held scanners linked to laboratory information systems.

A further case of transfusion of ABO-incompatible cryoprecipitate has been reported and is included here as a learning opportunity.

Case 8.6: Intentional transfusion of ABO-mismatched cryoprecipitate

Cryoprecipitate was requested for a patient (group A) with ongoing bleeding as per advice from a consultant haematologist. Group A was initially thawed but had to be discarded as not used within the 4-hour time limit. There were no further units of group A cryoprecipitate in stock, only group O. The BMS checked the standard operating procedure (SOP) and blood transfusion policy and could not find any definite statements that said group O could or could not be given to a group A patient. After liaising with a senior BMS and checking the Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC) website (https://www.transfusionguidelines.org/transfusion-handbook/2-basics-of-blood-groups-and-antibodies/2-4-the-abo-system), group O high-titre negative units of cryoprecipitate were issued and transfused with no adverse impact noted.

The decision to transfuse in this case was taken after assessing the risks of delay to transfusion, and lack of availability of group-specific cryoprecipitate. This case was not included in the number of ABOi cases because the decision to transfuse was intentional, as per available guidance and had no adverse impact on the patient. However, the case is included in the total number of WCT cases and has been described here as a learning opportunity.

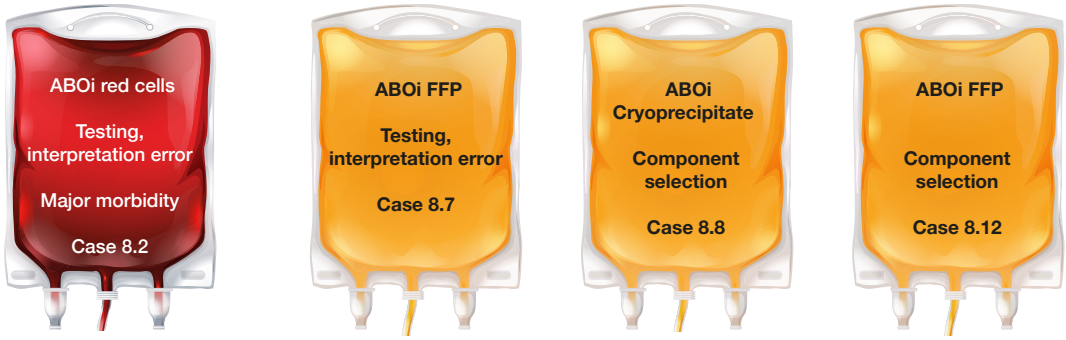
Plasma components (e.g. fresh frozen plasma, cryoprecipitate) should be compatible with the ABO group of the recipient to avoid potential haemolysis caused by donor anti-A or anti-B. FFP and cryoprecipitate contain only a small amount of red cell stroma (red cells after FFP thawing would be expected to be <0·001mL in 300mL FFP). This means that sensitisation following administration of D-positive plasma to an D-negative individual is very unlikely to occur. Hence, plasma components of any D-type can be given regardless to the D-type of the recipient. Anti-D immunoglobulin is not required in these situations.

While in general, in order to avoid the risk of ABO-associated haemolysis in recipients, plasma of donors with identical ABO blood group to the recipient should be used as the first choice; in an emergency, if the patient's blood group is unknown, ABO non-identical plasma is acceptable if it has 'low-titre' anti-A or anti-B activity. Group O plasma components should ideally only be given to group O patients.

This case is a reminder to all staff involved in transfusion about principles of compatibilities for plasma components which differs from red cells. Also, it was identified that the local SOP and blood transfusion policy did not specifically cover or clarify group compatibility for cryoprecipitate.

The use of plasma components including compatibilities is covered in detail in the BSH guidelines (BSH Green et al. 2018). It was noted that the NHS Blood and Transplant leaflet for healthcare professionals http://hospital.blood.co.uk/media/29844/blc7132.pdf states *'group O cryoprecipitate should only be given to group O recipients'* and has been taken from the BSH guidelines. As per the JPAC website, group O or B could be considered as second choice for providing cryoprecipitate to group A patient when group specific component is not available. It does however clarify that *'Group O plasma-rich blood components such as fresh frozen plasma (FFP) or platelet concentrates should not be given to patients of group A, B or AB if ABO-compatible components are readily available. Cryoprecipitate contains very little immunoglobulin and has never been reported to cause significant haemolysis'* https://www.transfusionguidelines.org/transfusion-handbook/2-basics-of-blood-groups-and-antibodies/2-4-the-abo-system. This is being updated to align with the current BSH guidelines.

Figure 8.4: Laboratory ABO-incompatible transfusions n=4



ABOi=ABO-incompatible; FFP=fresh frozen plasma

Case 8.7: ABO-incompatible FFP issued following an interpretation error during testing

FFP was requested urgently for a patient with no historical record. A rapid immediate spin of the blood group was performed on the first sample (group B) to allow defrosting to commence. The sample was then placed on the analyser as urgent to perform the group and screen. A further immediate spin was performed on a second sample (again group B) before component issue. The results of the first sample were still not available on the analyser after 40 minutes so the FFP was issued based on two immediate spin groups. When the analyser group was available it was found to be group AB with a weak A antigen. The laboratory had recently installed a new analyser that was configured for efficiency rather than speed and the group did not get processed independently of the antibody screen. At the time the senior BMS was the only competent person in the laboratory and was training and supervising two new BMS staff.

This case highlights the depth of planning required during validation procedures of new instruments. If during validation it had been identified that there was increased time needed to get grouping results, then new systems could have been put into place to allow the emergency issue of group O red cells and AB/A plasma components in the absence of complete testing.

It also highlights the inappropriate pressure placed upon transfusion staff to maintain a safe service in the absence of staffing resource.

Case 8.8: ABO-incompatible cryoprecipitate selected in error

A patient with obstetric haemorrhage required cryoprecipitate to maintain their fibrinogen above 2g/L. The patient was group B and the only cryoprecipitate available was either group A or group O high-titre (HT) negative. Although the SOP stated the patient should receive group A the BMS thought that considering it not being HT-negative they would issue group O.

Learning point

- It is important to ensure stock that may possibly be issued in ABO-mismatched scenarios is of the correct specification and the standard operating procedure (SOP) is clear about replacement group issues

Near miss - there were a further 11 potential ABO-incompatible transfusions which were detected prior to the patient being transfused (10 laboratory and 1 clinical).

Good news - The number of reported red cell ABO-incompatible transfusions is reducing over time, Figure 8.5, and remains consistently low with 8 reported cases during the past 3 years.

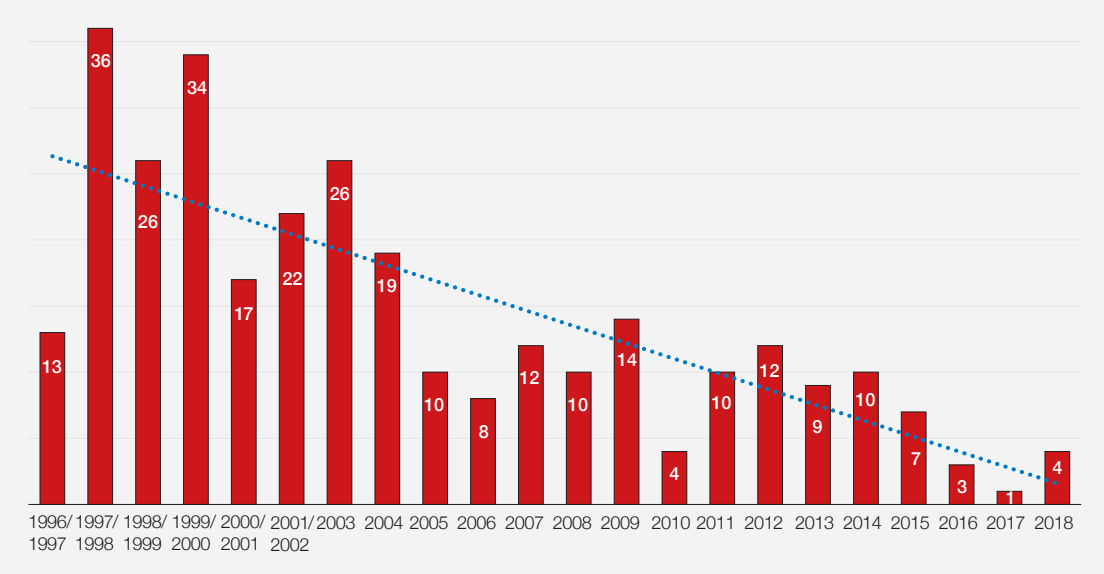


Figure 8.5: Number of ABO-incompatible red cell transfusions 1996-2018

There were opportunities to prevent 'never events' occurring during 2010-2018, despite all efforts by frontline staff and specific practical actions implemented to support prevention of transfusion of ABO-incompatible components. In 41/55 (74.5%) ABO-incompatible red cell transfusions the first error either occurred at or could have been identified at the administration step, Figure 8.6.

A recent review of NHS England 'never events', 'Opening the door to change' (CQC 2018) revealed 'the failure to reduce the toll of never events tells us there is something fundamental about the safety culture of our health care' and the majority of investigations into never events require human factors' based solutions.

The report has made recommendations to encourage a change in culture and behaviour, and in turn reduce the risk of harm to patients (CQC 2018).

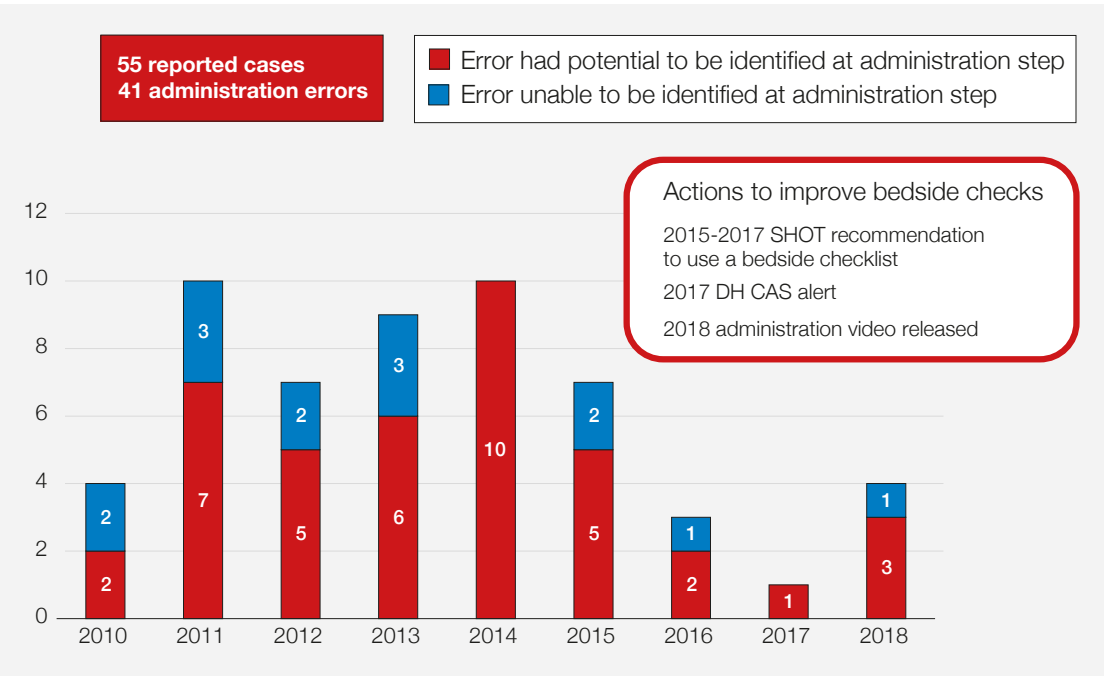


Figure 8.6: Number of ABO-incompatible red cell transfusions where the first error occurred or had the potential to be identified at the administration step 2010-2018

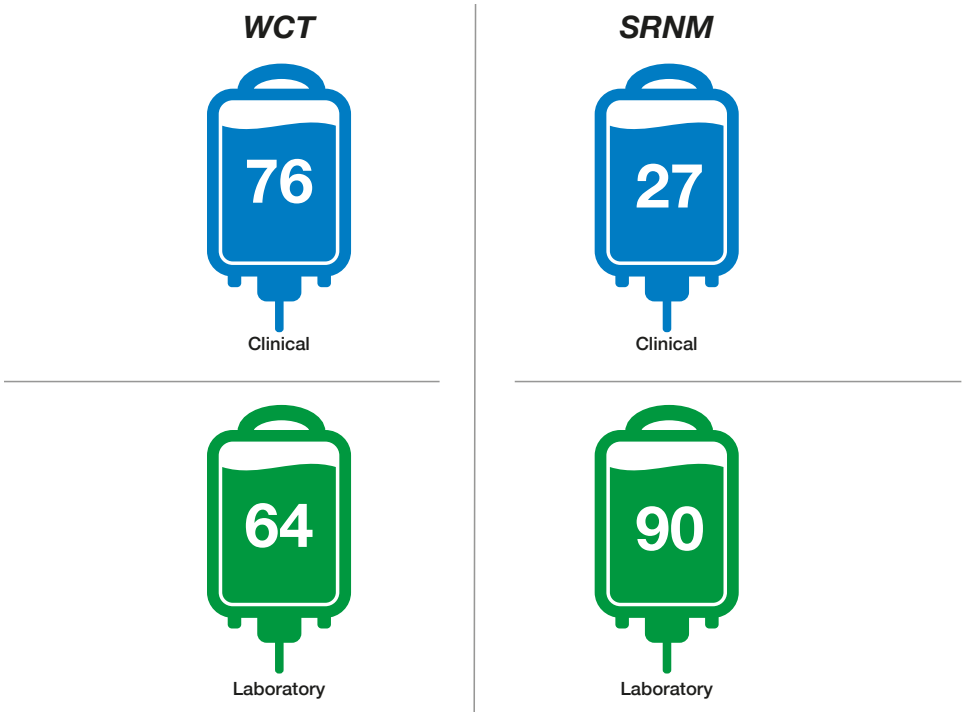
DH=Department of Health; CAS=central alerting system

Near miss IBCT n=257

Definition:

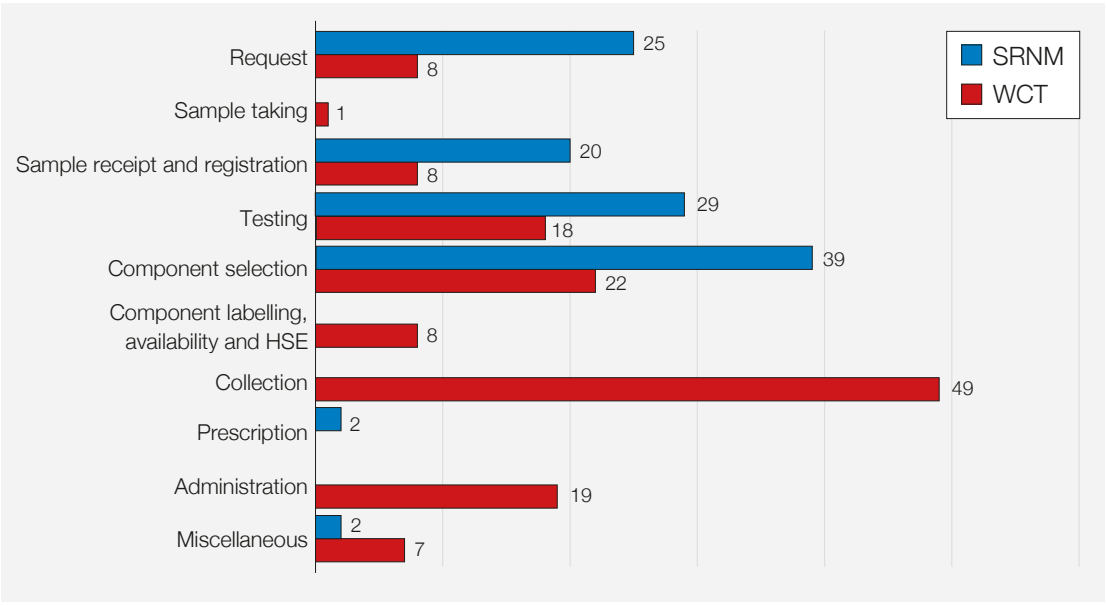
A 'near miss' event refers to any error which if undetected, could result in the determination of a wrong blood group or transfusion of an incorrect component, but was recognised before the transfusion took place.

Figure 8.7: Overview of reports of near miss IBCT n=257



WCT=wrong component transfused; SRNM=specific requirements not met

Figure 8.8: Points in the transfusion process where the first mistake occurred (clinical and laboratory) leading to near miss wrong component (WCT) or specific requirements not being met (SRNM) n=257



WCT=wrong component transfused; SRNM=specific requirements not met

Critical steps in the transfusion process

Errors occur at each of the nine steps in the transfusion process. Each step incorporates independent checks at every point that should, if carried out correctly and in full, be able to identify any errors made earlier. Figure 8.9 illustrates the nine steps including both clinical and laboratory areas and the two critical points where positive patient identification is essential.

The clinical cases in this chapter demonstrate where the incident initially occurred, the category of error and helps to understand why they happen and identify any learning points for clinical and laboratory staff.

Note: Errors associated with laboratory steps are discussed in more detail in Chapter 14, Laboratory Errors.

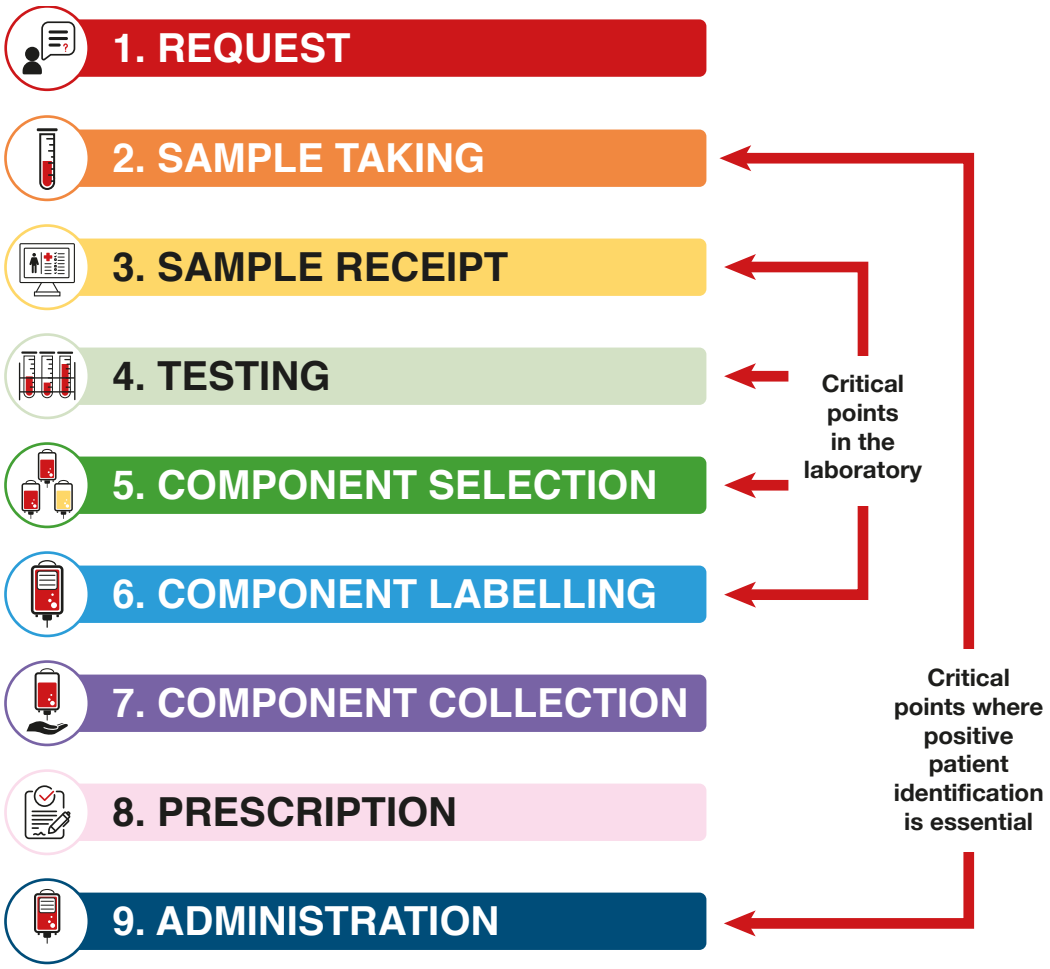
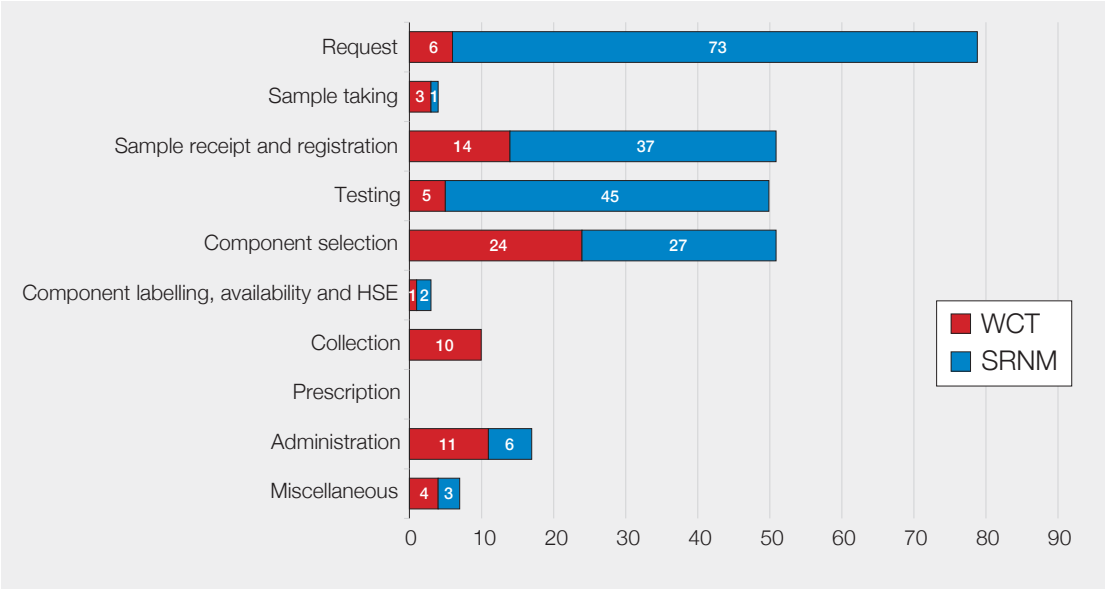


Figure 8.9: Transfusion process (nine steps)

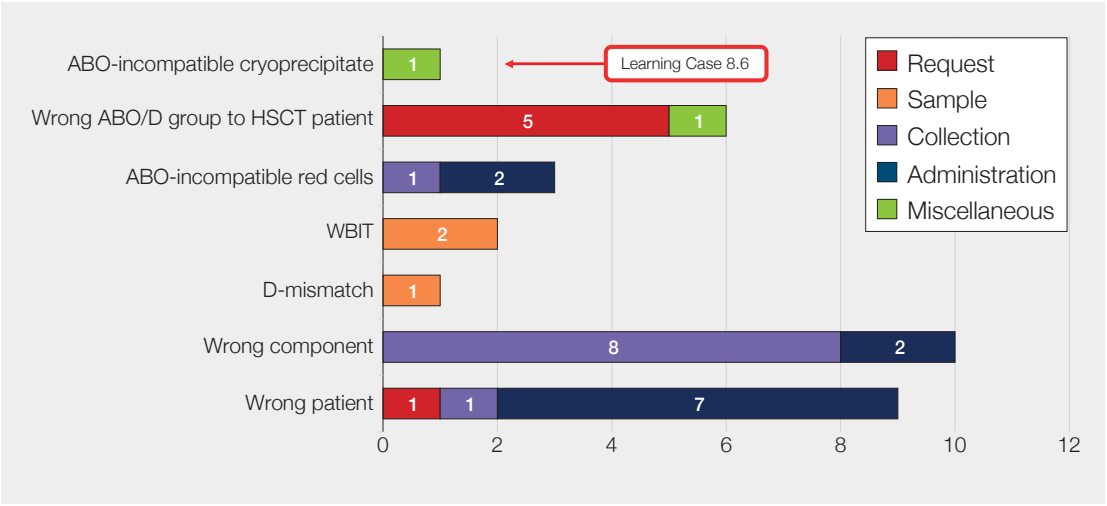
*Note: Once a decision to transfuse is made, the authorisation or prescription may be written at variable times during this sequence, but **must be checked at the final stage**.*

Figure 8.10: Points in the transfusion process where the first mistake occurred (clinical and laboratory) leading to wrong component transfused (WCT) or specific requirements not met (SRNM) n=272



HSE=handling and storage errors

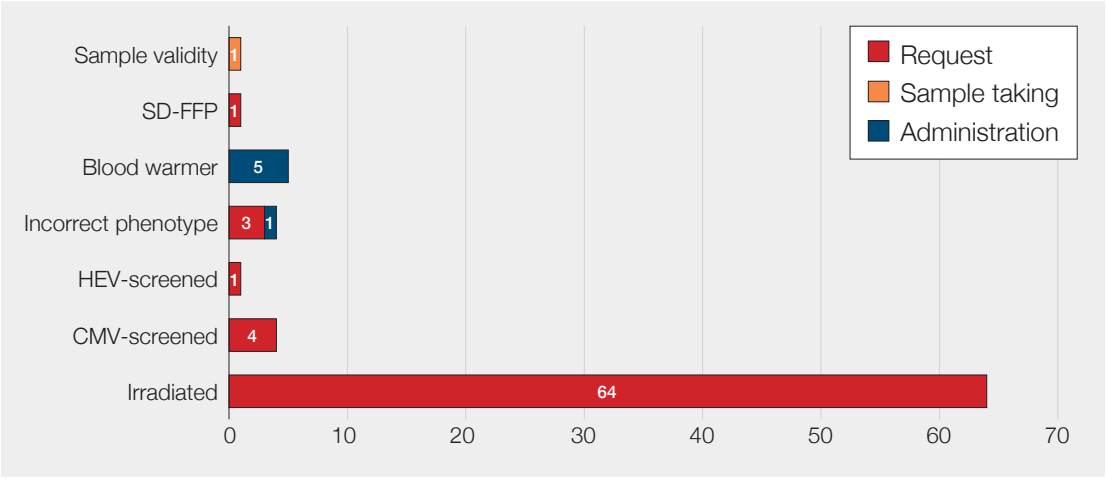
Figure 8.11: Clinical errors resulting in wrong component transfused n=32



HSCT=haemopoietic stem cell transplant; WBIT=wrong blood in tube

There were no prescription errors reported in 2018

Figure 8.12: Clinical errors resulting in specific requirements not being met n=80



SD-FFP=solvent detergent fresh frozen plasma; HEV=hepatitis E virus; CMV=cytomegalovirus

There were no collection or prescription errors reported in 2018

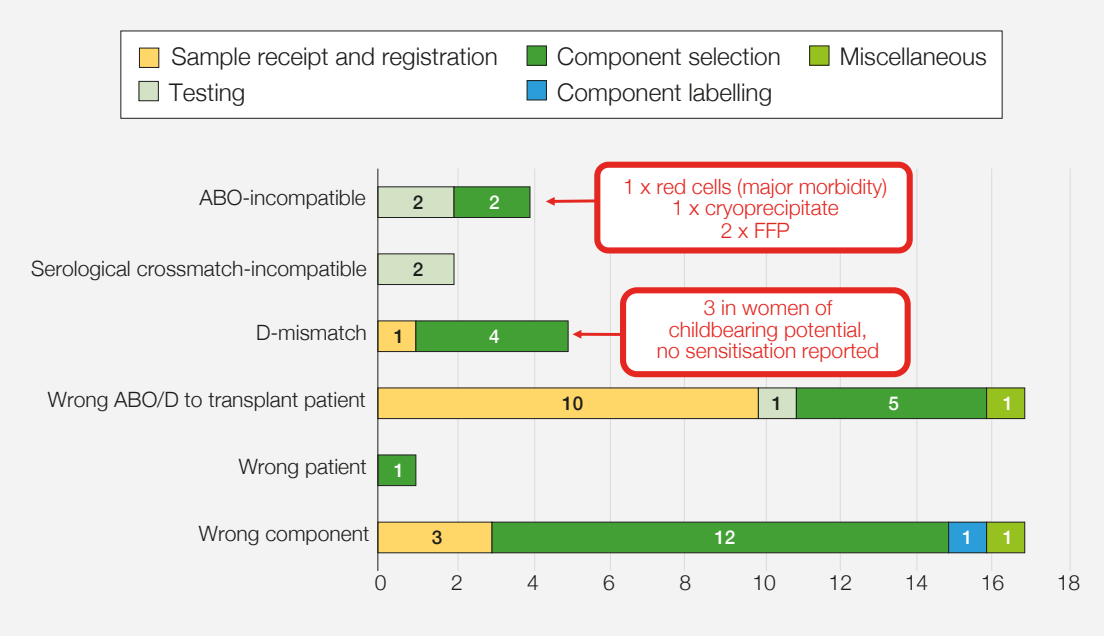


Figure 8.13: Laboratory errors resulting in wrong component transfused n=46

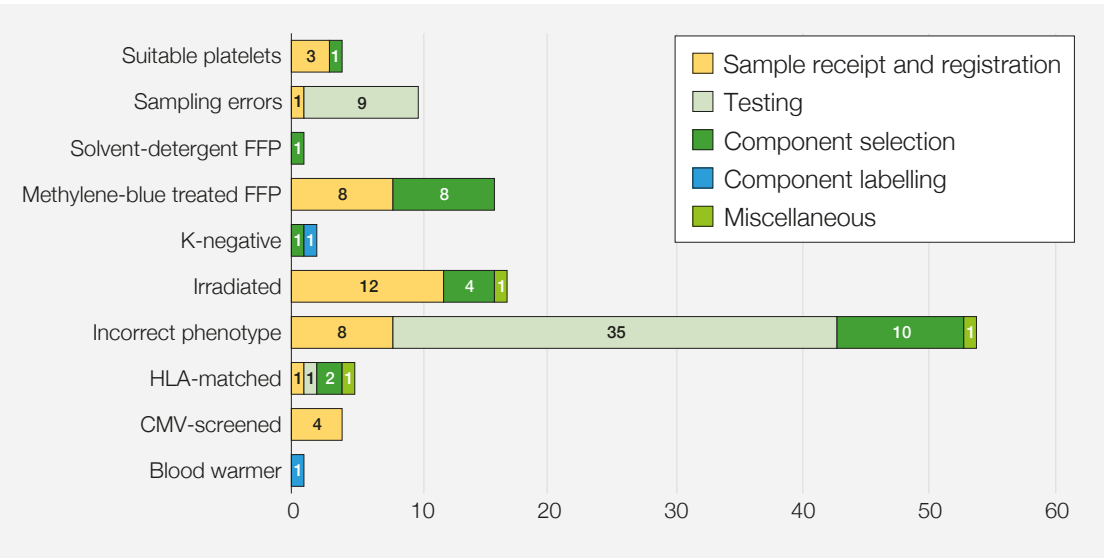


Figure 8.14: Laboratory errors resulting in specific requirements not being met n=114

FFP=fresh frozen plasma; HLA=human leucocyte antigen; CMV=cytomegalovirus

Step 1: Request errors n=79 (plus 33 NM cases)

The request is the first of the nine steps in the transfusion process following the decision to transfuse. Specific requirements not met account for 73/79 (92.4%) of all primary request errors.

Good news – the number of primary request errors has fallen compared to previous years.

Figure 8.15: Reduction in the number of SRNM primary request errors

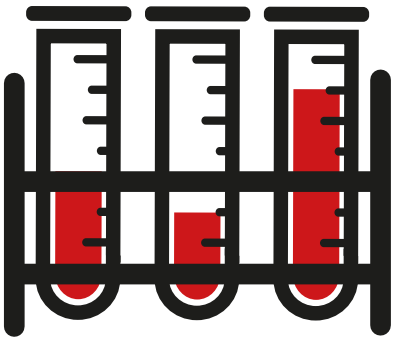
Learning point

- There are opportunities to identify the correct specific requirements at several steps in the transfusion process. Staff in both clinical and laboratory areas should remain vigilant and raise any suspected omission with requesting clinicians

Step 2: Taking the blood sample n=4 (plus 1 NM case)

Taking a blood sample for pre-transfusion compatibility testing is one of two critical points in the transfusion process where positive patient identification is essential. Figure 8.9 (transfusion process).

Figure 8.16: Summary of sampling cases



Two separate cases involved a mix up of samples (WBIT) between neonatal twins

One suspected historical case of WBIT led to a D-mismatched transfusion

One case of a sample that was not labelled correctly in the clinical area. The patient's date of birth was written in the 'date taken' box and 'date of birth' box. Not noticed by the laboratory staff and blood was issued and transfused using an invalid sample

WBIT=wrong blood in tube

Learning point

- Extra vigilance is required when taking samples from neonates of multiple births

Step 3: Sample receipt and registration n=51 (plus 28 NM cases)

Correct procedures for sample receipt and registration are essential to ensure that the right investigation is performed for the right patient on the right sample at the right time (dependent on the patient's transfusion history).

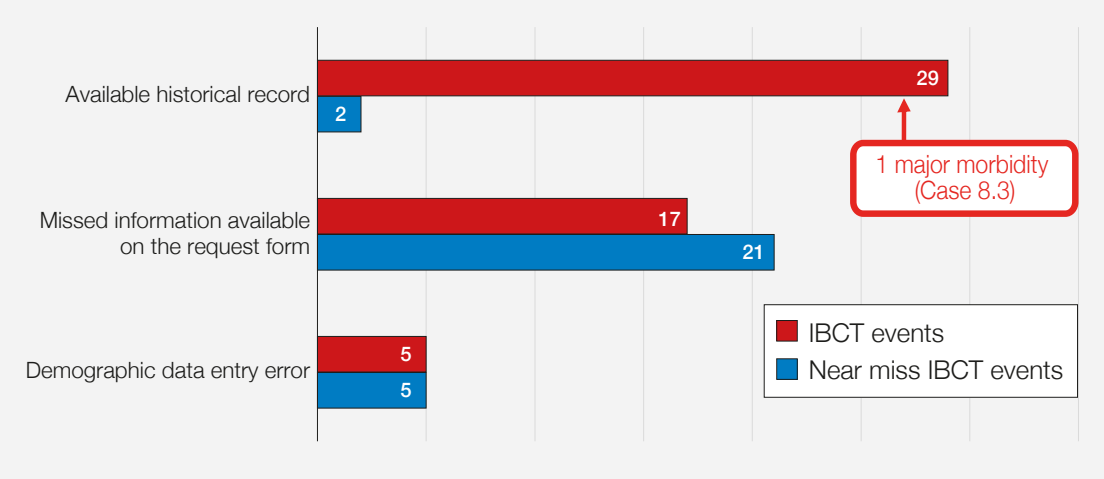


Figure 8.17: Sample receipt and registration errors with outcome n=79

IBCT=incorrect blood component transfused

All learning points and laboratory-related incidents in sample receipt and registration are detailed in Chapter 14, Laboratory Errors.

Step 4: Testing n=50 (plus 47 NM cases)

Correct analysis is required to ensure the safe provision of blood components for transfusion and should be undertaken in full compliance with local and national guidelines for pre-transfusion testing (BSH Milkins et al. 2013).

Figure 8.18: Testing errors with outcome n=97

ABOi=ABO-incompatible; FFP=fresh frozen plasma

Procedural errors continue to be the most common testing error. This year the key laboratory recommendation is the importance of following procedures. All learning points and laboratory-related incidents in testing are detailed in Chapter 14, Laboratory Errors.

Step 5: Component selection n=51 (plus 61 NM cases)

This step ensures that the correct components (together with the specific requirements) are selected to comply with the patient's requirements and the clinical request.

There were two selection errors where ABO-incompatible cryoprecipitate and FFP were transfused to patients, see Cases 8.8 and 8.12, and a further 2 near miss episodes where the patient had the potential to receive ABOi red cells, but these were detected at the bedside. All learning points and laboratory-related incidents in component selection are detailed in Chapter 14, Laboratory Errors.

Step 6: Labelling, availability and handling and storage errors n=3 (plus 8 NM cases)

The correct component needs to be labelled with the correct four (or five) key patient identifiers; first name, last name, date of birth (DOB), unique patient identifier (and first line of address in Wales) (BSH Milkins et al. 2013). Components need to be accessible and available for the time required, if this is not attainable then the clinical area need to be informed. The components need to be handled and stored in the correct way as defined in the guidelines (JPAC 2013). There was one near miss where the BMS was lone working and labelled the unit incorrectly. The clinical staff member was notified of an incompatibility from a personal digital assistant (PDA) alert where it was noticed that the unit was A D-positive and that the patient was O D-positive.

All learning points and laboratory related incidents in component labelling are detailed in Chapter 14, Laboratory Errors.

Step 7: Collection n=10 (plus 49 NM cases)

This step ensures that the correct component is collected from the storage site and delivered to the correct clinical area.

Good news – in 2018 the number of primary collection errors was 10, this has fallen compared to the 26 reported cases in 2017.

Collection as the primary error accounted for 10/32 (31.3%) of clinical WCT. Of the 10 incorrect components collected, 8 were the wrong component type, e.g. platelets instead of FFP. The transfusion priority for 5/8 (62.5%) was indicated as urgent or an emergency. The remaining 2 were the correct component type but were intended for other patients, 1 resulting in an unintentional ABO-incompatible red cell transfusion (see Case 8.5).

Figure 8.19: Summary of wrong component type cases

Three cases of wrong 'yellow' (FFP, cryoprecipitate, platelets) components **collected** and administered

Two cases of adult emergency red cell units **collected** and then administered to paediatric patients

One case of a red cell unit **collected** instead of platelets and administered

One case of emergency O D-negative red cells **collected** instead of issued O D-negative (group specific was not available)

One case of platelets **collected** instead of red cells and administered

FFP=fresh frozen plasma

Learning point

- Errors remain evident in high pressure/urgent situations. The procedure should be clear at the point of collection to allow ease of selection of the correct component type, especially those that are of the same colour

There were a further 49 errors made at the point of collection that could have led to a WCT if not detected immediately prior to transfusion at the administration step, Figure 8.8.

Step 8: Prescription (written authorisation) n=0 (plus 2 NM cases)

This step is identified in Figure 8.9 as step 8, but although the prescription may be written at different points in the transfusion process it should be completed and checked prior to the final administration step.

Step 9: Administration n=17 (plus 19 NM cases)

Administration as a primary error accounted for 11/32 (34.4%) of clinical WCT. Of the 17 administration errors, 9 involved transfusion of components to the wrong patient, 2 resulting in ABO-incompatible red cell transfusion. The remaining 2 WCT involved the wrong component type transfused during massive haemorrhage.

The failure to use a blood warmer continues to be the main reason for administration errors in the SRNM category accounting for 5/6. In the remaining SRNM case the laboratory failed to supply the correct phenotype for a patient with sickle cell anaemia.

Where it was indicated that a two-person check was being used for all reported cases of primary collection and administration errors, 8/27 stated the use of an 'independent' check, 7/27 used a 'dependent' check, 6 used a one-person check and 6 were unknown.

There remains variance in practice when performing the checks prior to administration and the 2 cases below illustrate how the use of a 'dependent' check can lead to the wrong patient being transfused. A 'dependent' check is not the recommended process for checking components prior to administration, (BSH Robinson et al. 2017) as over reliance on the other person can happen and then neither check correctly.

Near miss WCT clinical cases show that 24/58 of wrong patient incidents were detected by electronic ID systems at the point of administration.

Case 8.9: Use of a 'dependent check' at the administration step leads to transfusion to the wrong patient

A ward sister confirmed the date of birth with the patient against the identification band and prescription. A healthcare assistant (HCA) as the 2nd checker failed to check these details against the compatibility label.

A bedside checklist was not in use in this hospital.

Recommendations – Trust/Health Board to explore if the use of HCA as 2nd checkers for blood administration is appropriate and consider the use of electronic clinical systems

Case 8.10: Use of a 'dependent check' and failure to identify the patient at the administration step leads to transfusion of the wrong patient

Two registered nurses performed a dependent check (one nurse checked the identification band and the other nurse checked the blood component and the prescription). They did not positively identify the patient.

Both were competency-assessed and knew they should perform the check using an independent check. The event took place in the emergency department (ED), and was extremely busy and a shortage of staff was noted

Case 8.11: Transfusion to the wrong patient despite the use of an electronic system to alert staff of an error

The wrong identification band was placed on a child which was intended for another child that was also due a transfusion that day.

The nurse took a unit of red cells to the child wearing the wrong identification band. Although there was an electronic prompt to carry out a verbal positive identification check, this did not take place. The electronic system was unable to alert the nurse this was the wrong patient because the unit matched the wristband

Figure 8.20: Three cases demonstrating transfusion to the wrong patient

Learning point

- The use of a 'dependent' check at the administration step can contribute to transfusion of the wrong patient. Staff need to ensure they understand the difference between a two-person 'dependent' and a 'double independent' check

An instructional video regarding the pre-administration blood component transfusion bedside checklist was produced in 2018 collaboratively by SHOT and the NHSBT Patient Blood Management team, and can be found on the SHOT website (www.shotuk.org).

Miscellaneous n=7 (plus 9 NM cases)

There were 7 cases where the primary error was not associated with the nine steps in the transfusion process.

Clinical n=2 (2 WCT)

- Cryoprecipitate was wasted in the clinical area due to time-expiry see learning Case 8.6
- The wrong D group was provided to a HSCT patient due to shared care between two hospitals

Laboratory n=5 (2 WCT and 3 SRNM)

- Two of these were due to errors originating in the Blood Service:
  - One wrong component selected and one patient that received an incorrectly phenotyped unit
- Three where laboratory staff did not update the patient records when instructed leading to:
  - Two patients where their specific requirements were not met, irradiated and HLA-matched components respectively
  - Wrong ABO group to a HSCT patient

Multiple errors

Many reported cases include more than one error and demonstrate there are missed opportunities to detect errors and prevent transfusion of an incorrect blood component.

Case 8.12: ABO-incompatible FFP selected incorrectly for a neonate

A neonate required plasma exchange in the early evening out-of-hours during a shift handover. Due to resource pressure on the laboratory and the fact that the laboratory was not familiar with neonatal transfusion, group O plasma was selected for a group A patient. Soon after starting the shift the BMS on duty was under pressure when clinical staff came to collect the FFP. Assuming the previous BMS staff had selected the correct component and under pressure the BMS ignored the warning flag and overrode it. The clinical staff were unaware that, unlike red cells, group O is not the universal plasma group. The laboratory had logged a request with the LIMS supplier to block issue of group O plasma components to non-group O recipients, but this work had not been completed.

Primary error - component selection: The laboratory management had previously identified a weakness in the LIMS and requested a block, however, at the time there was sufficient knowledge within the staff, but they failed to respond to an alert flag (assumed the BMS on shift beforehand had selected the correct component) from the LIMS to alert them they had selected group O plasma for a group A patient.

Multiple missed opportunities to detect the primary error in the following steps of the transfusion process are as follows:

Component labelling: During the labelling step the BMS did not check the group of the plasma component.

Collection: Failure to notice that the wrong component had been collected from storage site/hospital transfusion laboratory.

Administration: Clinical staff thought group O FFP would be compatible. They were unaware that, unlike red cells, group O is not the universal plasma group.

This case highlights the importance of all staff involved in transfusion knowing and understanding ABO groups and component compatibilities as recommended in the 2017 Annual SHOT Report (Bolton-Maggs et al. 2018).

IT-related IBCT cases n=125

Further details of the IT-related reports can be found in the supplementary information on the SHOT website www.shotuk.org.

Commentary

It is encouraging to see a reduction of reports at two steps in the transfusion process this year; the number of errors made at the point of requesting specific requirements and the number of errors that occur at the collection step.

Important lessons can be learnt from errors made at all steps in the transfusion process, (clinical and laboratory) and most striking is the number of errors that have the potential to be stopped at the administration step. If these are identified immediately prior to administration, they will prevent the most serious transfusion incident – unintentional transfusion of an ABO-incompatible blood component. This can lead to patient harm or death.

There continues to be strong evidence for implementation of a bedside checklist and/or electronic identification systems to strengthen identification of errors at the final step of the transfusion process.

References

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