22 Paediatric Summary

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Definition:

Paediatric cases comprise all reports for patients under 18 years of age, including all paediatric cases from the other chapters in this report. Paediatric reports have been subdivided by recipient age group: neonates ≤28 days; infants >28 days and <1 year old; children ≥1 year to <16 years and young people aged 16 to <18 years.

Key SHOT messages

- Multiple reports of laboratory errors involving neonatal pre-transfusion compatibility testing and blood group selection continue to highlight the need for a focus on education and training of laboratory staff
- There has been a higher number of paediatric reports of specific requirements not met over the last two years, in particular for 'other' categories which include laboratory errors in pre-transfusion testing and in selection of phenotyped blood
- Eleven of 21 cases of overtransfusion or undertransfusion reported to SHOT (52.4%) were in paediatric cases, consistent with the complexity of transfusion administration and prescription calculations for neonates and children
- There have been 4 reports of neonatal transfusion-associated circulatory overload (TACO) in the last 2 years
- There were 5 cases involving recipients undergoing neonatal exchange transfusion, an area of complexity for both laboratory and clinicians
- There were 3 cases where neonates were given adult O D-negative units instead of available neonatal units in emergency, in comparison with 12 similar cases in 2015

Recommendation

- Laboratory staff should be fully trained on, and be aware of the British Society for Haematology (BSH) guidelines (BSH Milkins et al. 2013; BSH New et al. 2016) regarding pre-transfusion compatibility testing and red cell selection for neonates and infants up to 4 months old

Action: Hospital Transfusion Teams, Hospital Transfusion Laboratories

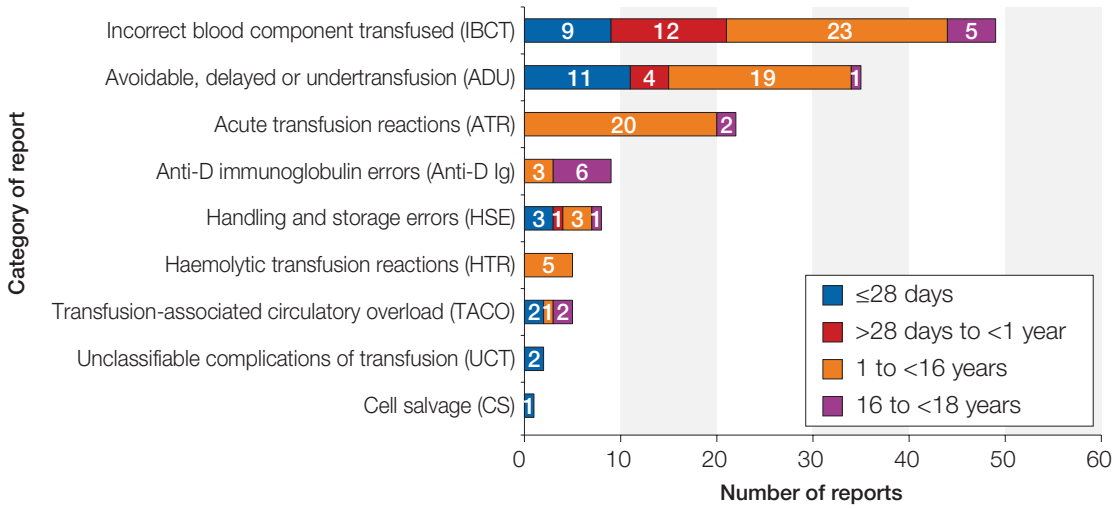


Figure 22.1: Summary of paediatric cases by category and age 2016

Introduction

The paediatric chapter is a 'mini-SHOT' report within the overall report. All the paediatric cases are captured elsewhere within the individual reporting category chapters, but are discussed together here in order to give an overview of the adverse events related to transfusion in this specialised group of patients (Figure 22.1).

The overall number of paediatric cases including near miss (NM) and right blood right patient (RBRP) at 271 is almost the same as in 2015 (274). They contributed 136/1581 (8.6%) of total incident reports in 2016, 271/3091 (8.8%) when NM and RBRP are included.

Paediatric error-related reports (IBCT, HSE, ADU and Anti-D Ig) were 74.3% (101/136) of total paediatric reports, a higher percentage this year than previously (having ranged from 58-69% over the previous 4 years) although the actual numbers were lower than in 2015 (112). This is almost identical to the 74.5% (1178/1581) of total reports that are errors. It is striking that for certain of the error categories, paediatric cases are a relatively high percentage of total reports, e.g. for IBCT-wrong component transfused (WCT) they were 21.8% (17/78).

Laboratory errors were the primary reason behind 45.5% (46/101) of paediatric error reports (11 IBCT-WCT, 23 IBCT-specific requirements not met (SRNM), 3 HSE, 8 ADU, 1 anti-D Ig), whereas they were only 24.4% (288/1178) for total reports. Paediatric laboratory errors were also a relatively higher percentage of total reports for individual categories such as IBCT-WCT (24.4%, 11/45) and SRNM (18.4%, 23/125). There has been a notable increase in the number of paediatric SRNM cases over the last 2 years (Figure 22.3a), particularly in the 'other' category. This is partly due to an increase in SRNM laboratory errors, with 23 in 2016 and 22 in 2015 (ranging from 8-15 over the previous 4 years), which may be related to increased pressures on laboratory staff. Given the repeated reports of paediatric laboratory errors and the significance of them for SHOT reports as a whole, these are the focus of the SHOT paediatric recommendation for this year.

ATR showed similar numbers and pattern of component types over the last few years (apart from a temporary increase in 2014; Figure 22.3b). Paediatric reports were 22/253 (8.7%) of all ATR, in line with the overall proportion of paediatric reports. Paediatric reactions to platelets (moderate and severe allergic) predominated (Figure 22.3b). It should be noted that the majority of these reactions (12/14 identified components) were to apheresis platelets, only 2/14 pooled. This is as expected given that apheresis platelets are recommended for children where possible.

Figure 22.2: Percentages of paediatric and total reports in each category

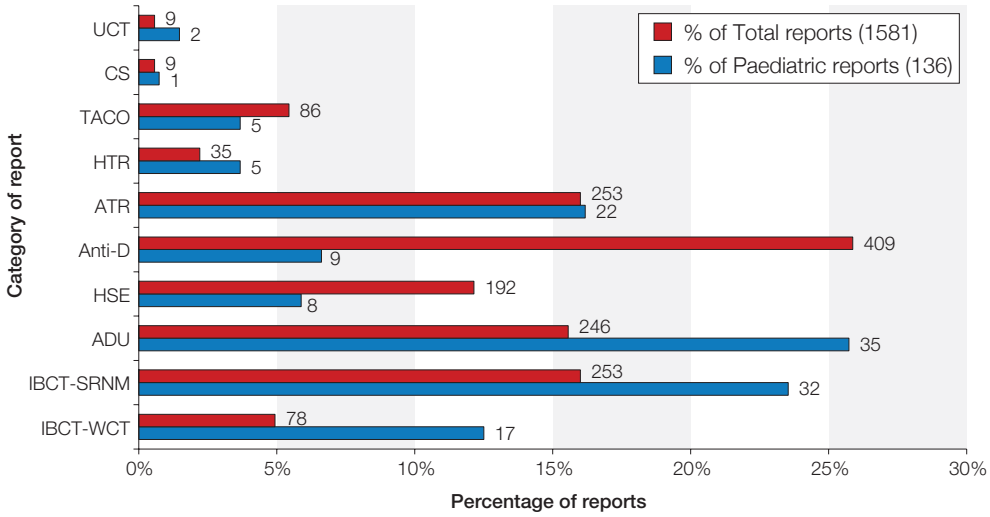
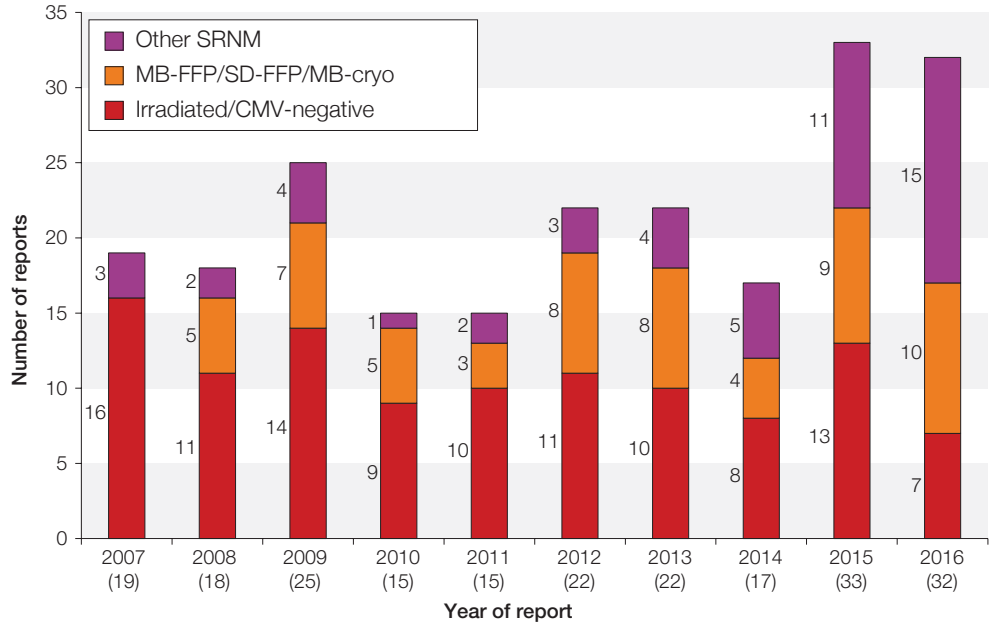
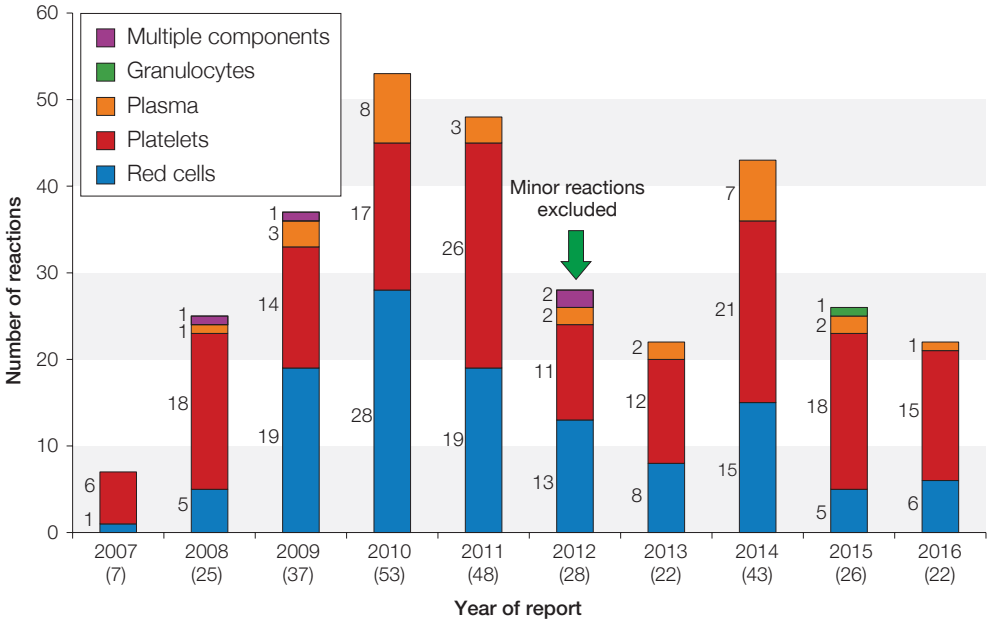


Figure 22.3: Trends in paediatric reports 2007-2016

a. Paediatric reports where specific requirements were not met



b. Paediatric acute transfusion reactions by component type



Deaths due to transfusion n=0

There were 8 deaths in the 136 cases, but none were related to the transfusion.

Major morbidity n=18

There were 18 cases of major morbidity in paediatric patients (10 ATR, 1 CS, 2 HTR, 1 IBCT-WCT Laboratory, 1 UCT, 3 TACO).

Error-related reports n=101

Incorrect blood component transfused (IBCT) n=49

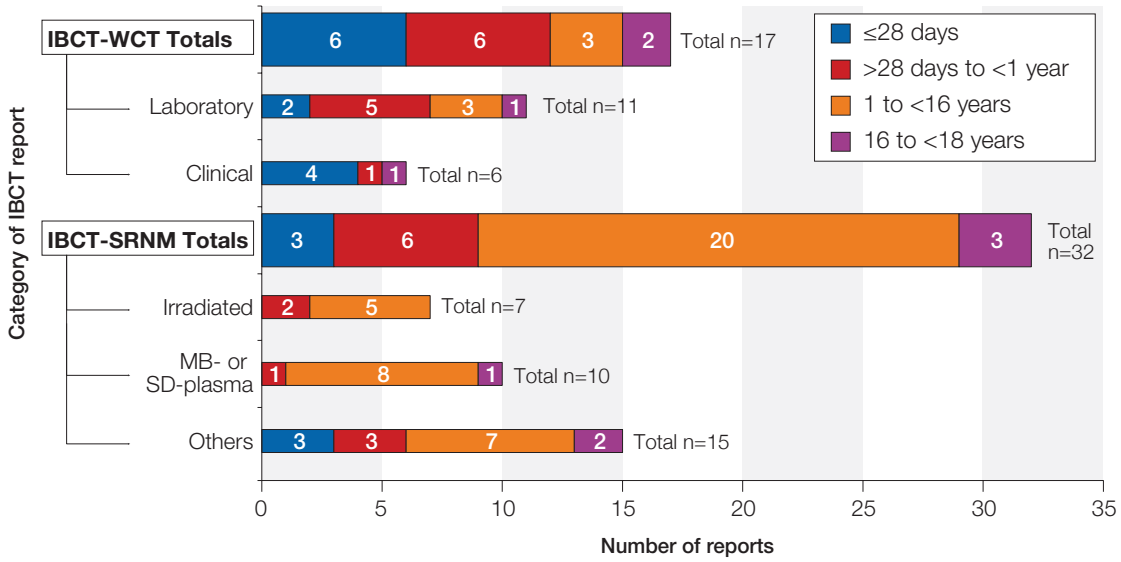


Figure 22.4: Breakdown of incorrect blood component transfusion reports

MB=methylene blue-treated; SD=solvent-detergent treated

IBCT-wrong component transfused (WCT) n=17

IBCT-WCT clinical error n=6

Three neonates received emergency adult O D-negative blood instead of the available neonatal red cells. In one case, despite measures taken to distinguish the adult pack from the neonatal, the wrong unit was taken.

Case 22.1: Preterm baby transfused with emergency adult red cells

Two emergency O D-negative units appropriate for neonates and two for adults were stored in the delivery suite blood refrigerator. Each pair of units was kept in a different clear plastic envelope with information sheets specifying the contents. A sick preterm baby (haemoglobin (Hb) 112g/L) required urgent transfusion prior to hospital transfer. Despite the information sheets, the neonatal nurse selected adult O D-negative blood for the transfusion. The hospital is now adding pictures of adults and neonates to the information sheets.

Local strategies to keep the adult and neonatal emergency red cell units separate and easily distinguishable are recommended to reduce the risk of confusion.

A fetus received an emergency intrauterine transfusion (IUT) with a non-irradiated 23-day-old paedipack as there was insufficient time to order irradiated red cells specific for IUT. This report serves as a reminder that in an emergency, it is acceptable to transfuse a neonatal paedipack (ideally less than 5 days old) as

an alternative to IUT red cells, and that maternal blood should not be used (Bolton-Maggs et al. 2013; BSH New et al. 2016).

A 5-week-old baby was grouped as O D-negative and transfused group O red cells, platelets and plasma during surgery for a bowel perforation. He was later discovered to be B D-positive: the laboratory had not been informed that he had been transfused O D-negative red cells at another site. A 16-year-old bleeding patient was transfused with O D-positive red cells that had been crossmatched for another patient and collected from the emergency refrigerator in error.

IBCT-WCT laboratory error n=11

There were 4 reports of procedural errors related to neonatal and infant blood grouping/compatibility testing. A baby who had received group O IUT was grouped as O at birth. This should not have been reported as the baby's true group could not be determined due to the prior IUT. A 1-month-old baby, group A, with necrotising enterocolitis (NEC), who had received multiple transfusions with group O red cells and was grouping as O in the laboratory was given group O fresh frozen plasma (FFP) due to failure to check the historical record. An infant aged 4 months and 10 days was issued red cells using the original sample taken at birth, despite the fact that from 4 months of age compatibility testing should be undertaken as for adults.

A 3-year-old group A D-positive patient, prior to haemopoietic stem cell transplant (HSCT), was erroneously grouped as O D-positive on 7 occasions following an initial mixed field grouping result and without checking the results from the referring laboratory. A 5-year-old patient with sickle cell disease was grouped as D-positive and was transfused accordingly, but on genotyping was found to have a D variant and should have had D-negative red cells.

There were several reports of incorrect blood group selection. A 1-month-old group A D-negative baby girl was transfused with O D-positive red cells due to incorrect component selection, only discovered later at another hospital. The hospital decided to only stock D-negative neonatal red cells in the future.

A 4-day-old D-positive baby with haemolytic disease of the fetus and newborn (HDFN) due to maternal anti-D inappropriately underwent exchange transfusion with O D-positive units, resulting in prolonged haemolysis requiring further exchange transfusion (see full details in Case 10.1, Chapter 10, Incorrect Blood Components Transfused (IBCT)).

A 2-month-old baby who had received intravenous immunoglobulin (IVIg) was transfused with group A red cells, despite local protocols and the patient notes on the laboratory information management system (LIMS) indicating that they should receive group O (to mitigate any risk of anti-A in the IVIg). A 17-year-old female group B D-negative patient with sickle cell disease underwent red cell exchange transfusion with six units of O D-positive red cells due to incorrect component ordering by the laboratory, only detected 6 weeks later.

Pooled platelets were issued to a 15-year old instead of apheresis platelets. Although platelets had been requested by the ward prior to the routine platelet delivery the BMS did not check the platelets in stock and assumed that they were apheresis, discovering too late that only pooled platelets were available. Although pooled platelets may be given to children where it is not possible to provide apheresis, this was a laboratory procedural error.

Learning points

- Where laboratories choose to stock both O D-negative and O D-positive paedipacks in order to optimise use of O D-negative red cells this should be highlighted to staff, given that many laboratories only stock O D-negative paedipacks
- When interpreting neonatal grouping results, laboratory staff should be aware that they need to take into account previous transfusions of group O red cells. If there is uncertainty as to whether the true neonatal group is O, group O platelets and plasma components should be avoided until the neonatal group is confirmed

IBCT: specific requirements not met (SRNM) n=32

Clinical cases where requirements were not communicated properly to the laboratory n=9

Laboratory primary error n=23

Non-irradiated n=7

There were 6 clinical cases. These included 2 infants, 1 post IUT, 1 DiGeorge – clinicians contacted the laboratory to say that the patient no longer required irradiated blood as they had a thymus, but this decision was later reversed; 2 prior to stem cell collection and 2 on treatment with fludarabine.

The final case was a laboratory error where information on the request form was missed.

An additional case where the laboratory did not select irradiated red cells for a child undergoing stem cell harvest is included in Chapter 11b, Avoidable Transfusions, Case 11b.2.

Non-MB/SD plasma n=10

There were 10 cases where standard plasma was provided instead of MB/SD provision by the laboratory (5 reports for FFP and 5 for cryoprecipitate).

Others n=15

Inadequate pre-transfusion testing n=7

There were 7 cases in the laboratory where there was inadequate pre-transfusion testing, several due to confusion over the requirements for compatibility testing in neonates and infants up to 4 months of age.

- 4 cases involved inadequate pre-transfusion antibody screening. A 6 day neonate was issued with red cells based on a maternal sample from 2 months before delivery. A 25 day neonate was issued with blood crossmatched against a 15-day-old sample. Another neonate was transfused red cells without antibody screening of either maternal or neonatal samples. Finally, a 14 month child was issued red cells based on the neonatal compatibility screening protocol and before the results of antibody screening were available
- There were 3 cases where maternal antibodies were not appropriately taken into account in compatibility testing: a neonate whose mother had detectable prophylactic anti-D should have had a full crossmatch but was issued blood by electronic issue; a 1-month-old infant whose mother had anti-Le^a and anti-Le^b antibodies correctly had blood crossmatched against the maternal sample for the first unit of donor red cells, but when a second unit from a different donor was required it was not crossmatched as necessary; a 3-month-old baby with maternal anti-C^w did not have blood crossmatched on several occasions

Failure to use phenotyped blood n=5

- 4 for patients with haemoglobinopathies aged 2-17 years: 1 due to lack of communication from clinical staff that the patient had sickle cell disease, 1 due to incorrect phenotyping in the laboratory, 2 due to failure to follow procedures in the laboratory to provide Rh phenotyped blood for haemoglobinopathy patients (one female patient developed anti-e)
- A 7-year-old female patient on extracorporeal membrane oxygenation was transfused with K-positive blood

Others n=3

- Hepatitis E virus (HEV)-screened units, two cases due to lack of clinical communication with the laboratory over requirements for children with HSCT and T-acute lymphoblastic leukaemia
- Use of blood >7 days old for exchange transfusion in sickle cell disease (red cells <7 days old had been ordered but were placed into routine stock, so when requested for the exchange transfusion older red cells were issued in order to avoid delay)

Learning point

- Procedures for pre-transfusion compatibility testing and component selection are different for recipients under 4 months of age in order to take into account maternal red cell antibodies. The maternal sample should be taken within 3 days pre delivery or collected post delivery (BSH New et al. 2016). Where antibodies are present, although crossmatching is not required for subsequent paedipacks from the same donation, it must take place each time blood from a new donor is to be transfused

Avoidable, delayed or undertransfusion (ADU) n=35

Avoidable transfusion n=6

There were 5 transfusions based on incorrect pre-transfusion results. Three red cell transfusions were based on erroneous Hb results, including an incorrectly transcribed Hb result on the ward (the 'mean cell volume' mistaken for Hb); cryoprecipitate was transfused to a 20-day-old neonate based on erroneous results from the coagulation laboratory (insufficient sample for accurate test); platelets were given on the basis of an unexpectedly low platelet count of $21x10^9$/L, subsequently found to be due to platelet clumping.

Case 22.2: Red cell transfusion based on oxygen saturation result instead of Hb

An 11-day-old neonate in the paediatric intensive care unit (PICU) was unnecessarily transfused on the basis of a Hb result communicated by the PICU fellow to the consultant as 87g/L. The figure was an oxygen saturation result from a blood gas sample. The true Hb result was 131g/L, and the post-transfusion Hb rose to 174g/L.

Case 22.3: Hb result from shared-care hospital not taken into account

A 2-year-old patient with a posterior fossa tumour under shared care between two hospitals had a red cell transfusion based on a Hb from one hospital (78g/L) whereas there was a more recent higher Hb result (110g/L) available from another hospital which had not been used.

This case emphasises the need to take particular care with pre-transfusion results when a child's care is shared between two hospitals.

In an additional case, transfusion of non-irradiated components to an 11-year-old for a stem cell harvest resulted in discard of the stem cell collection and the requirement for a repeat collection with repeat transfusion (counted as avoidable, Case 11b.2 in Chapter 11).

Delays to transfusion n=14

Four delayed transfusions to neonates and infants were due to laboratory communication or labelling issues, including a 14-day-old neonate where 'Twin' rather than 'Twin 1' was used as the forename on the compatibility label. Two were due to problems with provision of components by the Blood Service including a second exchange transfusion unit for a baby with severe hyperbilirubinaemia, and 3 were due to failure to communicate within the laboratory and order components. In one case there were problems with transmission of results from blood analysers.

There were 2 delays to 1-year-old children with major haemorrhage, either not preparing components in time, or not activating the protocol correctly.

A 15-hour delay in transfusion of a 1-month-old infant occurred due to difficulties in inserting a cannula for the transfusion. An unusual delay resulted when a paediatric patient (6 years old) needed an emergency transfusion at a hospital that had never previously transfused children. As there were no protocols in place, the transfusion was delayed while the Medicines and Healthcare Products Regulatory Agency (MHRA) and the hospital chief executive were contacted for approval.

Overtransfusion n=9

Five cases involved overrunning or incorrectly set volumetric pumps. Two neonates were overtransfused by a few millilitres. A 4-year old received an entire unit of red cells instead of the prescribed volume (60mL less than the volume of the whole unit) as there was no 'volume to be infused' programmed into the infusion pump, another received 56mL more than prescribed, and a 14-year old received an additional 67mL.

There were 3 cases due to incorrect prescription, 2 using a calculation of the transfusion volume on the basis of the incorrect weight of patient.

Case 22.4: Use of an incorrect weight to calculate the transfusion volume

A 10-month-old infant weighing 14kg was overtransfused due to incorrect weight (23kg) being used to calculate red cell volume. The infant received 350mL red cells instead of the correct 200mL. The pre-transfusion Hb was 86g/L, post-transfusion Hb 167g/L.

Incorrect calculation of transfusion volume for children is repeatedly reported, and in this case resulted in a significant increase in transfusion volume.

Case 22.5: Prescription of platelets in 'units' not 'mL' resulted in overtransfusion

A 2-year-old child, 9.5kg, with an ependymoma was given a prophylactic platelet transfusion with 300mL platelets prescribed as 'unit' not in mL over 30 minutes (i.e. 32mL/kg, given at 64mL/kg/hour). There was no adverse outcome. The recommended volume is 10-20mL/kg for children <15kg.

Although on this occasion there were no adverse sequelae, prescription of blood components in units for small children can lead to circulatory overload with serious clinical consequences.

Case 22.6: Excess volume of cryoprecipitate transfused

A 14.5kg 2-year-old child with hypofibrinogenaemia and liver disease was prescribed 65mL of cryoprecipitate but the laboratory had insufficient small volume packs and provided a large volume pack. The nurse did not refer to the prescription volume and the entire 296mL was transfused. The child required urgent administration of furosemide.

This case emphasises the care that needs to be taken with transfusing small recipients who may require only a small proportion of the component volume provided. The recommended volume for cryoprecipitate is 5-10mL/kg at this age.

Learning point

- Paediatric transfusion volumes should be meticulously calculated. In order to prevent overtransfusion of blood components, it is recommended that they should be prescribed in mL and not units (BSH New et al. 2016), unless there are risk-assessed protocols for prescribing in units for older children. Previous SHOT reports have highlighted similar cases, and have recommended that paediatric transfusion prescribing should be the focus of ongoing education in hospitals

Undertransfusion n=2

A neonate requiring exchange transfusion was supplied by the Blood Centre with a unit incorrectly labelled with the original whole blood volume rather than the final manufactured component volume.

A 1-month-old infant was prescribed 33mL red cells over 3 hours but the pump was set at 0.33mL/hour so the baby was undertransfused.

Avoidable and wrong use of O D-negative n=1

An anaemic newborn baby was given emergency O D-negative blood but should have had crossmatched D-positive blood due to maternal anti-c. D-negative blood is incompatible with anti-c (Case 11b.5).

Unnecessary transfusion n=3

A 2-year-old child with pyruvate kinase deficiency was transfused prior to an adenotonsillectomy but the operation was cancelled.

Two transfusions were deemed to have been unnecessary by consultants on review, emphasising the importance of senior input in transfusion decisions. One of these was a second platelet transfusion within 4 hours for a 9-year-old child with acute lymphoblastic leukaemia and the other was a postoperative red cell transfusion for a 14-year-old patient with a Hb of 76g/L.

Handling and storage errors (HSE) n=8

Cold chain errors n=3

Platelets and red cells were transfused after being too long out of temperature control (one transfusion of red cells out of temperature control for 7 hours).

Transfusion of 'expired' components n=2

SD-FFP was transfused 1 hour and 45 minutes beyond the expiry time to a neonate because ward staff looked at the expiry date on the pack, not the post-thaw expiry time.

A unit of red cells was left in a satellite refrigerator beyond sample validity and was subsequently transfused. The new sample revealed that the patient had a positive antibody screen.

Excessive transfusion time n=3

There were three reports of excessive red cell transfusion times in recipients up to 1 year of age, of between 5 hours and 5.5 hours.

Anti-D Ig n=9

All cases related to problems with anti-D Ig administration in pregnancy, following sensitising events or delivery, the youngest 13 years of age. See Chapter 14, Adverse Events Related to Anti-D Immunoglobulin (Ig) for further details.

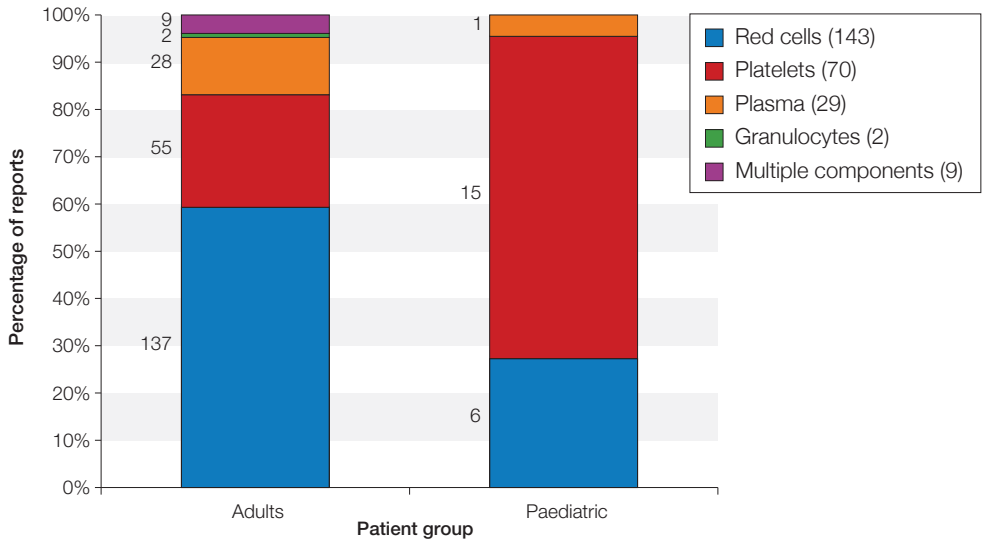
Transfusion reactions n=35

Acute transfusion reactions (ATR) n=22

There were fewer overall reports than in 2015 (26), but similar proportions of the different components implicated, with two thirds of ATR reports to platelets (Figure 22.5). The percentages of paediatric ATR to components were: red cells 6/22 27.3%, platelets 15/22 68.2%, plasma (MB-cryoprecipitate) 1/22 4.5%. There were 7 severe reactions to platelets, 2 to red cells (requiring admission), and 1 to MB-cryoprecipitate. No ATR were reported in infants or neonates.

- **Red cells**: There were two allergic reactions, classified as severe as they required admission to the ward. The rest were febrile reactions
- **Platelets**: The platelet reports were all of allergic reactions of variable severity. 11 were from apheresis, 2 pooled, 1 human leucocyte antigen (HLA)-matched, 1 of unknown type of platelets
- **Plasma components**: A 15-year-old patient undergoing scoliosis surgery developed tachycardia and hypotension following a transfusion with MB-cryoprecipitate, but with no respiratory compromise. The reaction was classified as allergic due to a significantly raised mast cell tryptase result. However, the patient was bleeding in theatre and it is uncertain whether the overall change in clinical condition was due to the cryoprecipitate

a. Comparison of proportions of adult and paediatric ATR related to different components



b. Percentages of reaction types for each component for paediatric reports.

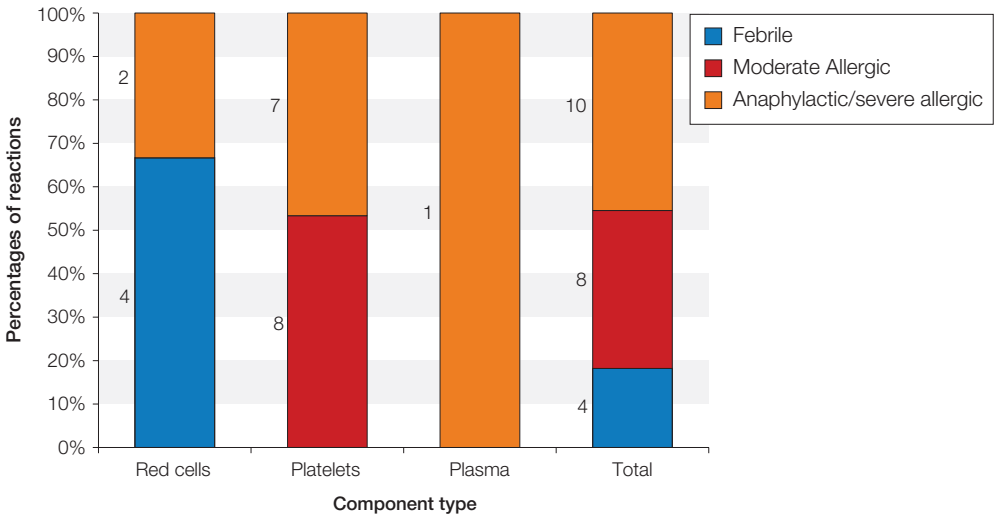


Figure 22.5: Paediatric ATR reports

Haemolytic transfusion reactions (HTR) n=5

A 9-year-old child group A D-negative was given O D-negative high-titre antibody-negative apheresis platelets due to a shortage of A D-negative platelets and developed a fever, rigors and an increase in bilirubin. The direct antiglobulin test (DAT) became positive following the transfusion and anti-A was eluted from the red cells.

Learning point

- For children, group O platelets are avoided for non-group O children, even though they are tested for high-titre anti-A/B haemagglutinins, in order to reduce the risk of haemolysis (BSH New et al. 2016). The risk of haemolysis may be greater for small paediatric than for adult recipients as they are often transfused with a greater volume of platelets per kg body weight. Moreover, children are usually transfused with apheresis platelets in plasma, not pooled platelets in platelet additive solution, so receive a greater plasma volume than recipients of pooled platelets

See Chapter 19, Haemolytic Transfusion Reactions (HTR) for details of other paediatric cases.

Transfusion-associated circulatory overload (TACO) n=5

There were two reports of TACO in neonates, and three in children aged between 10 and 17 years. A preterm newborn baby had a rapid respiratory deterioration requiring intubation following a double volume exchange transfusion. The baby had been born very anaemic, with the highest cord blood Hb of 70g/L, so at risk of developing heart failure.

Case 22.7: Symptoms of TACO developing during a neonatal top-up transfusion

An 18-day-old preterm baby with intrauterine growth retardation and Hb 63g/L was given a top-up transfusion and developed respiratory distress 75 minutes later having received 7.8mL red cells (7.5mL/kg). He required respiratory support with oxygen and non-invasive nasal ventilation. A chest X-ray showed airspace changes compatible with pulmonary oedema or infection. The transfusion was stopped and he had symptomatic improvement following treatment with furosemide. A diagnosis of possible TACO was felt the most likely despite the small volume of red cells transfused.

These two case reports highlight that it is important to be aware of TACO in neonates, and to consider even following small-volume top-up transfusions in babies without the conventional risk factors described in older recipients.

Cell salvage (CS) n=1

A 15-day-old neonate undergoing emergency cardiac surgery became profoundly hypotensive and had a cardiac arrest following infusion of red cells using a cell saver. However, the baby had other comorbidities including hypotension and there were haemostatic problems during surgery so imputability was uncertain (see Chapter 21, Cell Salvage (CS) for further details).

Unclassifiable complications of transfusion (UCT) n=2

There was one case reported as mild NEC, in a 26-day-old very preterm (24 weeks) neonate who developed a distended abdomen 14 hours after a red cell transfusion and subsequently had blood in the stool. However, the baby had started desaturating prior to commencing transfusion and the symptoms settled after conservative treatment. Expert review concluded that this was unlikely to be a case of transfusion-associated NEC.

Case 22.8: Rapid clinical deterioration following neonatal exchange transfusion

A 1-day-old neonate with HDFN due to anti-D, born anaemic with Hb 88g/L, had a rapid clinical deterioration two hours into an exchange transfusion. The baby developed bradycardia and hypoxia and had a cardiac arrest requiring resuscitation and intubation. No obvious cause for the deterioration was found. The red cells were negative for high-titre haemagglutinins.

There was a similar case in the 2015 Annual SHOT Report where the 'least unlikely' cause for a baby's deterioration was felt to be high-titre anti-A antibodies in the transfused unit (1:512). These cases emphasise the vulnerability of neonates undergoing exchange transfusion procedures and the difficulty in some cases in understanding the reason for clinical deterioration.

Near miss (NM) n=122 and right blood right patient (RBRP) n=13

There were a total of 47 NM cases of wrong blood in tube (WBIT) where there was confusion between the mother and baby identities, of potential harm to the baby, 29 of which were reported under the mother's details. There were also 5 cases of WBIT due to misidentification of twins.

Case 22.9: Transfusion volume miscalculated by a factor of 10

A 5-month-old infant was prescribed 447mL red cells (124mL/kg) in error as the transfusion formula used was not adjusted to take account for the change in reporting of Hb units from g/dL to g/L. The error was noted prior to administration.

This is an important learning case as it highlights that there can still be confusion about the units of Hb in relation to calculating transfusion volumes. As a double check when prescribing, it should be noted that transfusion volumes to non-bleeding neonates would not normally exceed 20mL/kg.

See Chapter 12, Near Miss Reporting (NM) and Chapter 8, Right Blood Right Patient (RBRP) for an overview of the other cases including paediatric.

Commentary

- There were 15 reports of laboratory errors involving neonatal and infant pre-transfusion compatibility testing and blood group selection across the different reporting categories. This striking number of reports may reflect staffing issues in hospital laboratories as has been highlighted elsewhere. Moreover, there has been an increase in the number of laboratory SRNM cases reported over the last two years. A focus on training about neonatal/infant specific requirements and pre-transfusion compatibility testing is needed
- Prescribing and administration errors leading to overtransfusion continue to constitute a risk to patients. The near miss with platelets written up as a 'unit' rather than mL for an infant is important to highlight as such errors can lead to significant overtransfusion
- The 4 reports of neonatal TACO in the last 2 years, having had only a single previous neonatal report since 2007, is likely to reflect increased clinical awareness and recognition. Neonatologists are encouraged to continue to monitor babies for signs of TACO following transfusions
- The 5 cases involving recipients undergoing neonatal exchange transfusion involved both laboratories and clinicians reflecting the special component requirements and the complexity of the clinical situation and vulnerability of the recipients
- The reduction in the number of cases in 2016 where neonates were given adult O D-negative units in emergency situations is heartening, and may reflect local strategies to reduce this risk in hospitals

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