Executive Summary
National Haemovigilance Office
Annual Report 2002

Haemovigilance has been defined as:
“A set of surveillance procedures, for the collection of blood and its components to the follow-up of recipients to collect and assess information on unexpected or undesirable effects resulting from the therapeutic use of labile blood products, and to prevent their occurrence or recurrence”
The remit of the National Haemovigilance Office (NHO), is to receive, collate and follow up reports of adverse reactions/events relating to the transfusion of blood and blood components from hospitals, healthcare institutions and General Practitioners (GP), and to provide feedback information to those making the report as appropriate.

It is the professional responsibility of each healthcare worker to report such incidents. This confidential and anonymised scheme is dedicated to the promotion of best transfusion practice at all stages in the transfusion chain from donor to recipient.

**Incidents: 2002**

During the one-year period from January 1st to December 31st 2002, there were 156 confirmed reports received and reviewed by the NHO. One event in the IBCT category may have contributed to mortality.

The confirmed reports received have been categorised in Table 1 below.

<table>
<thead>
<tr>
<th>Total Incidents</th>
<th>IBCT</th>
<th>A/A</th>
<th>TACO</th>
<th>DHTR</th>
<th>AHOSTR</th>
<th>PAD</th>
<th>TTI</th>
<th>TRALI</th>
</tr>
</thead>
<tbody>
<tr>
<td>156</td>
<td>88</td>
<td>31</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>100%</td>
<td>56%</td>
<td>20%</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>3%</td>
<td>2%</td>
<td>1%</td>
</tr>
</tbody>
</table>

IBCT Incorrect Blood Component / Product Transfused.

A/A Severe Acute Anaphylactoid or Anaphylactic Reaction.

TACO Transfusion Associated Circulatory Overload

DHTR Delayed Haemolytic Transfusion Reaction

AHOSTR Acute Haemolytic or Other Severe Transfusion Reaction.

PAD Pre-deposit Autologous Donor Incident.

TTI Suspected Transfusion Transmitted Infection.

TRALI Transfusion Related Acute Lung Injury.

There were no reports received in the Transfusion-Associated Graft-versus-Host Disease (TAGvHD) or Post Transfusion Purpura (PTP) categories.
Denominator
An analysis of the number of units issued in this period was carried out, these figures do not account for units discarded or wasted.

Units issued by IBTS 2002 Table 2

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Cells &amp; Whole Blood</td>
<td>127,601</td>
</tr>
<tr>
<td>Platelets</td>
<td>15,480</td>
</tr>
<tr>
<td>Solvent Detergent Plasma</td>
<td>19,403</td>
</tr>
<tr>
<td>Fresh Frozen Plasma</td>
<td>4,153</td>
</tr>
<tr>
<td>Cryoprecipitate</td>
<td>1,432</td>
</tr>
</tbody>
</table>

Participation
93% of hospitals participated in the scheme by returning a Nil to Report Form in 2002, indicating a considerably increased level of participation on previous years. Forty-one of those hospitals (49%) reported a transfusion reaction or incident.

Incorrect blood component transfused
Incorrect blood component transfused (IBCT) was the most common adverse event/incident reported. There were 88 cases in this category. These incidents have been stratified by level of severity as follows:

- Level 1- life threatening or potential for permanent injury (41 cases - 47%).
- Level 2- very unlikely to cause permanent harm or have the potential for minimal or transient harm (33 cases - 38%).
- Level 3- no realistic potential for harm (13 cases - 15%).

One case was not stratified, as it was an illustrative incident rather than an error.

Further analyses revealed that a total of 46 (52%) errors could have been detected and prevented during the final bedside checking procedure. These 88 cases were further categorised into site of first error.

Site of first error Table 3

<table>
<thead>
<tr>
<th>Site of first error</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Centre</td>
<td>11 (12.5%)</td>
</tr>
<tr>
<td>Prescription &amp; Request</td>
<td>32 (36%)</td>
</tr>
<tr>
<td>Sampling</td>
<td>7 (8%)</td>
</tr>
<tr>
<td>Hospital Transfusion Laboratory</td>
<td>23 (26%)</td>
</tr>
<tr>
<td>Site of Collection</td>
<td>4 (4.5%)</td>
</tr>
<tr>
<td>Administration</td>
<td>8 (9%)</td>
</tr>
<tr>
<td>Unclear</td>
<td>3 (3%)</td>
</tr>
</tbody>
</table>

Six Level 1 incidents related to the transfusion of the wrong ABO or Rh D group. The four red cell transfusion cases were, by chance, ABO compatible. Fortunately the one case where an ABO incompatible component was transfused involved plasma. Four cases involved clinical areas, one the laboratory and one could not be classified.

IBCT Findings - Clinical
In three cases, the wrong patient’s blood was sampled leading to blood of a different ABO group being transfused. In one of these cases a manual blood recipient identification system consisting of a tamper-evident identity (ID) band failed to prevent the error and shows that the security afforded by these bands depends on correct adherence to guidelines provided and rigorous checking procedures being in place.

In one case blood crossmatched for one patient was collected from the blood fridge and transfused to a different patient. In two cases the wrong component was transfused where platelets were requested instead of plasma and vice versa.

Inaccurate/absent haematology results
There were six reported cases where transfusion was based on incorrect haematology results. Three of these related to blood samples being taken from veins where intravenous (IV) fluids were infusing. In two cases transfusions were prescribed based on old haemoglobin (Hb) results taken some time earlier. In one further case, a high Hb result was recorded post transfusion, suggesting that a low Hb result recorded pre-transfusion may have been incorrect.

Inappropriate Transfusions
There were 10 cases of inappropriate transfusions reported. Four were related to the...
transfusion of plasma, three to red cells and three to platelets.

In one case an inappropriately large number of red cells units were transfused which may have contributed to mortality.

Two cases highlight the inappropriate use of plasma for anticoagulant therapy reversal. In two other cases plasma was transfused without any documented indication and in both cases coagulation studies were within normal range.

In two cases an inappropriately large dose of platelets was given in error because of misunderstanding of dosage guidelines. In one of these cases, the platelet count was spuriously low and the platelets were not in fact indicated.

**IBCT Findings - Laboratory**

The hospital transfusion laboratory was the site of first error in 23 (26%) incidents. Eight of these were level 1 incidents.

One case involved a transposition of units where red cells, crossmatched for one patient, were labelled for another patient, issued and transfused. Fortunately the unit was ABO compatible.

Three cases (one level 1 and two level 2) related to failures to heed computer warnings leading to the issuing of the incorrect factor concentrate in one case and failure to issue correct components for patients with special requirements in two cases.

There was one case where Rh D positive plasma was issued to a Rh D negative patient due to a communication error.

There were three level 1 incidents associated with the issue of anti-D and one associated with the issue of factor concentrate.

**IBCT Recommendations – Clinical**

- The number of cases reported in this category re-emphasises the need for ongoing education and training of staff involved in prescribing/ordering and administering transfusions. Best transfusion practice should also be an integral part of all induction training and education programmes for new staff.

- In view of inappropriate transfusion based on incorrectly taken samples, the need for appropriate on-going education and training of medical and nursing staff in correct blood sampling techniques is highlighted. Where possible, blood samples should be taken from an alternative limb to the one where fluids are infusing. Where the sample must be taken from the same limb, stopping the infusion before taking the sample and choosing a vein distal to the infusion is recommended.

- When collecting blood components/products prior to transfusion, adequate checking systems must be in place at the site of collection.

- The significance of the bedside checking procedure cannot be over-emphasised. Two people must confirm identity of the patient and the ABO and Rh D group of both the patient and unit at the bedside, involving the patient where possible.

- Because of this requirement it is desirable to only transfuse when adequate staff are on duty, avoiding night-time transfusions.

- Wherever practicable checking of Hb levels on a unit-by-unit basis should be carried out to avoid overtransfusion.

- In addition a number of system issues were highlighted which will require resource allocation.

- Although full medical records may not be available, it should be possible to access the previous medical record number (MRN) and give a new MRN on a 24-hour basis.

- Hospitals must have secure procedures to cover blood sampling and transfusion. The patient must have a secure ID band in place at the time of pre-transfusion sampling and administration. This ID band must contain three minimum identifiers: full name, date of birth and a unique identification number.

- Electronic forms of patient and blood component identification are now available and are recommended as they provide the highest degree of security. Where these systems are not in place, manual bedside
identification procedures at sampling and administration must be strictly adhered to.

- Ideally all requests for blood components/products should be made in writing. Hospitals need to develop protocols to accommodate this. An electronic ordering system needs to be developed for blood transfusion similar to systems already available for blood test ordering.

- Errors in communication can be minimised by using automated transfer of laboratory information to hospital patient identification systems. All clinical areas should have easy access to these systems and staff should be trained in their use.

**IBCT Recommendations – Laboratory**

- The importance of checking units against the written and/or verbal request prior to issue and of only labelling up and issuing units for one patient at a time is highlighted.

- Computer systems should be designed with audible alarms/alerts to minimise opportunities to override screen warnings. Preferably any such overrides should require a reason or explanation as this should lead to questioning of the need to override. An audit trail of any overrides should also be kept.

- Previous transfusion records should be available at all times and checked. The transfusion records of patients who may have been transfused in another hospital should be checked with the original hospital, wherever possible.

**Incorrect Blood Component Transfused – Anti-D immunoglobulin incidents**

**Findings**

There were 15 cases relating to anti-D immunoglobulin administration. None of the patients suffered any sequelae, although the follow-up period to exclude sensitisation arising from delays in administration may be too short. Ten cases involved inappropriate administration of Anti D. Four Rh D positive women received anti-D in error and in one of these cases the anti-D was given to the wrong patient. Poorly designed systems for identification of new-borns and for requesting anti-D contributed to two of these incidents.

Six RhD negative women who did not require anti-D on this pregnancy received anti-D. One case was due to administration to the wrong patient, two cases due to incorrect Rh D grouping of the cord sample and three cases were already sensitised.

There was one case where anti-D was omitted, and in four cases there was a delay in administering anti-D outside the recommended 72 hour time frame.

Three cases involved errors at laboratory level. One involved an incorrectly recorded result, one was due to transposition of sample tubes and in a third case the patient was grouped incorrectly. All three of these events occurred outside of normal working hours.

**Factor Concentrates**

There were two incidents, which involved the administration of the wrong factor concentrate product; one was laboratory related and the other inappropriate selection at ward level.

**Anti-D Incident Recommendations**

- Each hospital should have clear policies on prescription and administration of anti-D and the management of Rh D negative women during pregnancy.

- Some hospitals monitor requirements and issue anti-D through the laboratory as they have access to both the mother and baby’s group and antibody records and the product can be issued and labelled on a named patient basis. This seems very appropriate and would reduce the risk of errors.

- Effective communication between clinical and laboratory staff relating to antibody screening and the issuing of anti-D, is vital in preventing errors.

- Systems must be in place to ensure that there is easy access to current laboratory results, either in written or electronic format. Both the prescriber and the person administering anti-D should always check the most recent report of the patient’s Rh D
group and antibody screen to assess the need for the product prior to administration.

- Transcribed Rh D results must not be accepted; the original reports must always be consulted. This is particularly important where patients are receiving shared care between their GP and Obstetrician.

- For successful immunoprophylaxis, anti-D should be given as soon as possible after the sensitising event, but always within 72 hours. However as all three of the laboratory errors occurred during the night, it may be prudent to process samples which lead to the issue of anti-D, the following morning when there is less risk of human error.

- All babies should be given an ID band and a unique medical record number immediately post delivery. All baby’s samples should be processed using the baby’s own unique identifying details.

- Where cord blood samples are received for processing in the laboratory and group as Rh D positive, clinical or laboratory staff should not assume that the mother is Rh D negative. The mother’s Rh D status must be confirmed before anti-D is issued.

Serious Adverse Reactions including Severe Acute Anaphylactoid or Anaphylactic and Acute Haemolytic and Other Severe Acute Transfusion Reactions

Findings
There were 39 reports received in total, 31 AA and 8 AHOSTR. Of these 20 (52%) were due to platelet transfusions, 12 (32%) were due to red cell transfusions and 6 (16%) to plasma transfusions. Of the plasma transfusion reactions three were associated with FFP and three with SD treated plasma.

The number of reactions reported associated with plasma, six in total, has decreased when compared with previous years. This may reflect in part the introduction of solvent detergent (SD) treated plasma in March 2002 and increased compliance with guidelines.

Most of the AA reactions reported were associated with platelet concentrates, 18 out of 31 reports (58%). Thirteen of these (72%) were associated with pooled platelet concentrates. More female patients experienced allergic / anaphylactoid transfusion reactions than did male patients. There were 20 (65%) female patients and only 11 (35%) male patients.

18 (58%) of the patients who suffered an allergic/anaphylactoid transfusion reaction were transfusion-dependent secondary to malignant disease and were on multiple medications, which can make it difficult to be certain what caused the reaction. IgA deficiency with anti-IgA antibodies can cause severe allergic reactions. In the 12 cases where IgA levels were checked, IgA deficiency was excluded.

A number of patients had a history of allergies. In one case the patient had a history of bee sting anaphylaxis. In another, the patient had a history of multiple medication allergies. Two cases involved patients with a history of asthma and there was one case where the patient had a medication allergy and had a transfusion reaction in the past. In most cases an early response to chlorpheniramine and/or steroids was documented. Adrenaline was required to treat the symptoms in one case. However, in two cases recovery was delayed up to 24 hours, and in one case full recovery took 48hrs.

Most of the cases were consistent with an anaphylactoid reaction. However three cases showed atypical features with absence of cutaneous manifestations. Bacterial contamination was out ruled in these cases. In one case it is unclear if the symptoms were related to an anaphylactoid reaction or to volume overload.

AHOSTR accounted for 8 reports or 5% of incidents. The major concern with these reactions is that they may reflect ABO or other red cell incompatibility or bacterial infection of the component and both of these possibilities must be excluded. The exact cause of all these reactions has not been fully established, and in some cases the symptoms were probably related to the patient’s underlying condition.

Five of the cases involved the transfusion of red cells and red cell serological incompatibility was excluded in all. In two cases a platelet
transfusion was implicated, and in the final case, SD treated plasma was transfused to correct over-anticoagulation.

Five reactions involved the development of a fever. In such cases bacterial contamination of the unit needs to be excluded requiring cultures from both the patient and the unit. In four cases symptoms developed during transfusion, and required that the transfusion be discontinued.

Only one of these cases had blood cultures taken from both the patient and the pack, and in this case bacterial contamination was excluded as the cause of the symptoms. In two cases only the pack was cultured and no organisms were isolated. In all cases the patients recovered within 24 hours, without sequelae and it was unlikely that bacterial infection of a unit was the cause of any of the reactions.

**Recommendations**

- Individual units should be commenced slowly, and the patient observed closely, for the first 15 minutes / 50 mls as severe reactions are most likely to occur within this time.

- Each hospital must have a policy in place for the management of an acute transfusion reaction, which should include follow up patient care and the investigations necessary following the development of symptoms.

- In the event of fever both the patient and the transfused unit or units should be cultured to exclude bacterial contamination of the unit.

- SD plasma or FFP should be used in accordance with guidelines and should only be used for rapid reversal of over-anticoagulation in patients with serious bleeding or before emergency surgery.

- Protocols for management of severe allergic/anaphylactoid transfusion reactions should be in place in each hospital.

- Prophylaxis should be given if there is a history of previous allergy.

- Where there is a previous history of anaphylaxis, the patient will require specialist haematology and immunology support, including washing of the component, if further transfusion is required.

- Classical allergic or anaphylactoid reactions do not routinely require culture of the patient or component pack. However, where the symptoms are not classical, culture of patient and pack to exclude sepsis either from the component or the line should be undertaken. This is particularly important where platelets are involved, as they are stored at room temperature and have a greater risk of bacterial contamination.

**Transfusion Associated Circulatory Overload**

**Findings**

This category accounted for 10 reports or 7% of incidents. For patients with diminished cardiac reserve or chronic anaemia, rapid transfusion or massive transfusion poses a significant risk of circulatory overload. This year all episodes of TACO involved the transfusion of red cells, in contrast to the two previous years when the transfusion of plasma and/or platelets was associated with 42% of such episodes.

All but one episode involved elderly patients. This patient had pre-existing cardiac disease and the relationship of the TACO to the cardiac failure is unclear as the symptoms occurred four days following transfusion. Two patients had no known respiratory, cardiac or renal disease, but both were over 80 years of age and weighed less than 60kgs. In one case the transfusion was followed by an intravenous infusion of crystalloid solution and symptoms could not be solely attributed to the transfusion.

A fluid balance chart was not maintained prior to transfusion in eight of the ten cases. In the remaining two cases where the fluid balance was known, there was a significant positive balance prior to commencing the transfusion. Only one patient was given a prophylactic diuretic medication. This patient required two units of red cells and received an oral diuretic before the second was commenced, which was not sufficient to prevent circulatory overload.

Two incidents were associated with transfusion of three units of red cells where both patients
were known to have existing cardiac disease and so could be considered to be at greater risk. In both cases each unit was transfused over 2-2.5 hours and no prophylactic diuretic medication was prescribed.

These reactions caused considerable discomfort for the patients involved and caused increased length of hospital stay and/or increased healthcare costs in the form of more intensive nursing and/or medical care in at least four of the cases.

TACO Recommendations

• The risk of TACO is increased in the small, the elderly and the cardiac or respiratory compromised patient. Strategies to prevent TACO include individual assessment of each patient prior to transfusion and identification of those at risk.

• All patients, but particularly the elderly and those at greater risk of TACO, must be individually assessed prior to the first unit and carefully observed during transfusion. They should be reassessed before starting a subsequent unit. Transfusing slowly (1ml/kg of body weight/hour) to these patients with the use of diuretics may be necessary. Where possible, when transfusing elderly patients with more than one unit, it may be prudent to transfuse only one unit in each 24 hour period.

• An estimation of the patient's hydration status should be made prior to the transfusion of any blood component, especially those patients considered to be at increased risk of circulatory overload. Patients in positive fluid balance should be treated with a diuretic prior to commencing transfusion. The choice of route of administration ie oral or IV will depend on the degree of pre-existing congestive cardiac failure or overload.

• At risk patients in the day-care setting should be transfused with no more than two units per day with a prophylactic diuretic.

• There is a need to provide written information for day care patients receiving blood transfusion, outlining possible adverse transfusion reactions and providing a contact telephone number in the event that symptoms develop.

Delayed Haemolytic Transfusion: Findings

This category accounted for 9 reports or 6% of incidents. DHTRs can be difficult to diagnose and may therefore have been underreported in the past. As many of these patients are already very ill, the diagnosis is often overlooked.

Typically the picture is of falling hemoglobin 4-10 days after a transfusion. In some cases it may be associated with jaundice and rarely renal impairment.

This year, there has been an increased number of reports of DHTR detected compared to previous years. This probably reflects greater awareness due to the national haemovigilance scheme rather than any increased incidence.

The commonest antibodies implicated were Kidd antibodies with four cases involving anti-Jka. There were two cases involving anti-K one of which was also associated with an anti-E. There was one case each involving anti C+D, anti-c and anti Kp° + anti Fya°.

DHTR Recommendations

• These reactions, which are largely unavoidable, are likely to increase as our patient population, particularly the elderly, receive more transfusions. A DHTR should be suspected when there is a falling haemoglobin or jaundice some days post transfusion.

• Use of three cell screening panels, sensitive antibody screening techniques and satisfactory participation in external quality assurance schemes such as NEQAS, should minimise failures to detect weak antibodies. Careful history taking in relation to transfusion and pregnancies by the requesting physician is important. However, up to 12% of patients do not realise that they have had a transfusion. Therefore, access to and checking of previous transfusion records are essential.

• As antibodies can develop rapidly, patients being repeatedly transfused, depending on the interval between transfusions, should have a fresh sample submitted within 24-72 hours of a planned transfusion. When
investigating a DHTR a serum sample should be used for antibody detection as some antibodies, particularly complement dependent antibodies not detectable in plasma specimens may be detected in serum samples.

**Suspected Transfusion Transmitted Infection**

**Findings**

This category accounted for 3 reports or 2% of incidents. The NHO collects reports of transfusion transmitted bacterial and parasitic infections and suspected viral infections. Suspected transfusion transmitted viral infections relating to blood components which have been transfused after the introduction of mandatory blood donation screening for that virus are investigated. Other suspected infections occurring since the setting up of the National Haemovigilance Office in October 1999 are also investigated.

Post-transfusion infections may indeed be due to the transfusion of an infected or contaminated unit, but equally, infection may have been acquired from another source. Investigation of markers of infection in an implicated donation, or in subsequent samples from the donors of implicated donations, can confirm transfusion as the probable cause of infection, or identify the need to investigate other possible sources, including nosocomial.

Much concern has been voiced in recent years regarding the risk of transfusion-transmitted infection. There is very good evidence that with continuous improvements in the donor selection/testing procedures and manufacturing processes used in Ireland, the risk of transfusion-transmitted infection is very small.

The risk of receiving an incorrect blood component is in fact greater than the risk of receiving a transfusion transmitted infection.

A total of three incidents, which fit the criteria of suspected transfusion-transmitted infection, were reported to the NHO during this reporting year. Two of the investigations were instigated as a result of a positive viral marker found at blood donation and the third was reported by a hospital. In two cases involving hepatitis B and hepatitis C, transfusion has been excluded as the likely cause of infection. In the third case, a case of Hepatitis B, investigations are ongoing.

**Transfusion Related Acute Lung Injury**

**Findings**

This category accounted for 2 reports or 1% of incidents, both cases involving the transfusion of pooled platelet concentrates. In the first case the respiratory symptoms occurred at least 36 hours after the platelet transfusion. Further review of the clinical details and the chest x-ray were suggestive of pneumonia and TRALI has been excluded.

In the second case of possible TRALI, three donors were investigated and found to be negative for anti-HLA and/or anti-granulocyte antibodies. It has not yet been possible to test the fourth donor. Therefore full investigation of this case is not completed.

One reaction reported during 2001 was investigated during this reporting year. This case involved the transfusion of FFP. In this case both donors were found to have lymphocyte/granulocyte reactive antibodies. Based on the clinical features and antibody findings, it is felt that this case represents a case of TRALI.

**TRALI Recommendations**

- Any respiratory distress occurring during, or within six hours following, blood or blood component transfusion could potentially be TRALI. A chest x-ray should be performed as it may help to exclude or support the diagnosis. The differential diagnosis includes TACO, anaphylactic transfusion reaction, bacterial contamination of the transfused blood component and acute respiratory distress syndrome.

- Where there is a case fitting the clinical picture of TRALI the supplying blood centre should be notified of the unit numbers of the components transfused to facilitate the removal of any components and the temporary deferral of these donors pending investigation for HLA antibodies.
• Adherence to the guidelines for the appropriate use of blood components particularly components containing significant amounts of plasma is important in helping reduce the incidence of this complication.

• In addition since November 2002 the IBTS issues pooled platelets suspended in male donor plasma and FFP made from male donor plasma has been introduced to help reduce the incidence of this transfusion complication.

Pre-Deposit Autologous Donation: Findings
This category accounted for 5 reports or 3% of incidents.

Of the five incidents reported all involved patients undergoing elective PAD for orthopaedic procedures. The symptoms experienced by four of the donors ranged from immediate light headedness, pallor, sweating, nausea and fainting, which resolved quickly, to symptoms lasting two to three days following donation in one case.

Two of these donors were donating for the first time. The other three all had donated previously without adverse sequelae. None of five donors received volume replacement.

Four donors were female, one was male and there was a wide variation in age ranging from 13 to 77 years.

None of the adverse events involved hospitalisation of the patient or rescheduling of surgery.

Only two of the four donors who underwent surgery were transfused perioperatively with autologous blood. No extra allogeneic blood was transfused to any of the donors.

PAD Recommendations
• Pre donation assessment must elicit any underlying medical problems and hospitals should have specific criteria for donor acceptability.

• Particular caution must be exercised during the assessment and donation of patients taking beta blockers. Volume replacement should be considered for patients on treatment with beta blockers and/or ACE inhibitors as their ability to respond to a reduction in blood volume may be compromised by their treatment.

• Promotion of PAD programs should be carefully targeted to ensure that only patients who are likely to require transfusion are recruited. Regular audit of the usage of blood collected under PAD programs should be performed. Autologous transfusion carries the same risk as allogeneic transfusion, i.e. transfusing the incorrect component to the wrong patient. There is also the possibility of bacterial contamination, which although rare has been reported as somewhat more common in autologous donors than in normal donors.

• Systems must be in place to ensure that autologous blood is only transfused to the intended recipient.

Paediatric Incidents
As paediatric patients form an important sub group of transfusion patients we have collated the twelve paediatric cases in a separate section as well as including each case in the relevant section of the report. For the purpose of this report the term paediatric refers to the age range from newborn up to and including 15 years. The ages range from one day old to fifteen years. Of the twelve cases mentioned, eight are errors from the IBCT category; three are reactions from the AA category and one reaction in an autologous donor.
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