Department of Health

CAS Alert

Safe Transfusion Practice: Use a bedside checklist

09 November 2017

Alert reference number: **CEM/CMO/2017/005**

Since the first report in 1997 the UK national haemovigilance surveillance programme, Serious Hazards of Transfusion (SHOT), has repeatedly identified that patients are harmed, and some die, as a result of being given the incorrect type of blood.

In 2014 a patient died as a result of an ABO-incompatible transfusion in a high profile case. The nurse collected, then administered a unit intended for another patient with a similar name. This would have been prevented if the final bedside check had been undertaken correctly.

There were seven ABO-incompatible transfusions reported to SHOT in 2015, and three in 2016. All of these were preventable. In addition to the risk of ABO-incompatible transfusion, patients may have other specific, and sometimes critical, transfusion requirements such as irradiated blood, CMV negative serology blood and extended phenotype blood.

Two critical points occur in preparation for transfusion; the first is to correctly identify the patient and label the sample when taking blood for a pre-transfusion blood sample, and the second is to check the details on the unit of blood and the patient's identity at the point of transfusion.

Evidence from SHOT shows that the bedside check performed at the point of transfusion is not always undertaken correctly and that this puts patients at risk of serious complications or death. SHOT therefore recommends a structured process with a **bedside checklist** which must confirm the following:

- Positive patient identification including first name, family name and date of birth; unless impossible, this should be done by asking the patient to state their names and date of birth
- Unique identification number (hospital number, NHS number or equivalent)
- Check that it is the correct and compatible component (against the prescription and label on the component) for this patient at this time
- Check that the component meets any specific requirements for that patient

This alert encourages organisations to review their blood transfusion processes. There is an appendix of additional information which has been circulated with this alert, and is available at the link provided in the resources section, below.

Professor Dame Sally Davies
Chief Medical Officer,
England

Professor Jane Cummings
Chief Nursing Officer,
England

Actions

Who: All organisations providing NHS funded care which involves the provision of blood transfusions.

When: Immediate

1. Organisations should assess their bedside systems (including electronic systems) to ensure a confirmatory step is in place where the individual performing the checks must sign to say all steps have been followed.

2. This alert (and supporting information) should be circulated to all relevant staff, including to community nursing staff and midwives who may be involved in the transfusion of blood products in the community.

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Further information

An appendix of additional information can be found from page 3 onwards, it is also available to download from the CAS website via: https://www.cas.dh.gov.uk/SearchAlerts.aspx

Communication:

NHS England Regional offices are asked to cascade to GP's.

This alert has also been sent to the following action recipients

CMO urgent messages – recipients on public health link

NHS Foundation trusts (England) – medical directors

NHS Trusts (England) – medical directors

Regional Directors of Public Health

And copied to the following for information

NHS Trusts (England) - Chief Executives

NHS Foundation Trusts (England) - Chief Executive s

CMO Urgent Messages – Recipients on public health link

CMO Urgent Messages – Non-NHS Recipients on public health link

Territorial CMO's in Ireland, Scotland and Wales

Clinical Commissioning Groups

Appendix

Wrong transfusions: Background

SHOT is the UK national haemovigilance scheme and has reported since 1996 on adverse incidents related to blood transfusion (20 years). Every year the largest group of reports are those where an incorrect blood component was transfused. This includes incidents where the wrong component was transfused, for example red cells were given when platelets had been prescribed. It includes transfusions where the component transfused was intended for a different patient. Figure 1 shows the cumulative numbers over 20 years. In the first year of reporting 22% National Health Service organisations participated but in recent years this has increased to 100%. These data show that despite the introduction of competency assessments (2) for all staff members who participate in the transfusion process, the numbers of wrong transfusions are not reducing. Over the same period of time the number of serious reactions allergic/febrile, which cannot be predicted have increased in line with the total number of reports (Figure 2).

Categories of incorrect blood components transfused (IBCT)

ABO-incompatible red cell transfusions are the most serious preventable errors and are reportable as 'never events' (3). While these may cause death or serious harm, in about two thirds there are no or minor adverse effects. These events may therefore be under-reported. Altogether 302 have been reported to SHOT. Twenty patients have died and an additional 80 suffered serious harm. ABO-incompatible transfusions have decreased from a maximum of 34 reported in 1999/2000 to between 3 and 14 between 2007 and 2016 (1). These potentially fatal incidents result from two main causes, the wrong patient is sampled ('wrong blood in tube' WBIT) or the component is transfused to the wrong patient.

The risk of sampling the wrong patient is reduced by ensuring every patient has two independent samples taken prior to a first transfusion. This group-check sample is recommended in British Society for Haematology guidelines (4). This policy is now in place in most hospitals (129/177, 73% of respondents to the recent survey from the National External Quality Assessment scheme for blood transfusion). Taking a single sample, splitting it into two and sending them separately at different times completely defeats the purpose of this safety step. In 2016 two of the three ABO-incompatible transfusions were caused by WBIT. If a sample is taken from the wrong patient and there is no group check, a wrong transfusion cannot then be detected by the bedside check. It is notable that in 2016 there were 3 ABO-incompatible transfusions but a further 264 near miss events due mainly to WBIT. These were detected because there was a different historical group. These incidents were caused by poor practice associated with failure to correctly identify the patient and labelling the blood sample tubes away from the bedside.

Other wrong transfusions include giving D-positive cellular components to a D-negative recipient. This carries about a 25% risk of development of anti-D antibodies which can cross the placenta in D-negative women causing damage to fetal red cells if the baby is D-positive.

Wrong components transfused. The patient is transfused a different component than the one prescribed or authorised, for example is given platelets instead of red cells.

Specific requirements not met. Some patients require components selected for additional features such as irradiated cellular components for certain indications where patients have weakened immune systems (5). This is to reduce the risk of transfusion-associated graft versus host disease where transfused lymphocytes engraft in the recipient. The outcome is usually fatal. Some protection is offered by pre-storage universal leucodepletion. Cumulative SHOT data show that more than 1300 patients have received non-irradiated components since the introduction of leucodepletion in 1999, one patient receiving more than 450 non-irradiated components. Additional specific requirements include cytomegalovirus-screened cellular components for pregnant women (unless emergency transfusion is needed), and red cells matched for

additional blood group antigens are recommended for patients with haemoglobin disorders such as the sickle cell diseases and thalassaemia to reduce the risk of potentially serious haemolytic reaction. This is particularly important for patients with known irregular red cell antibodies who require units negative for those antigens.

These specific requirements must be notified to the transfusion laboratory and should be included in the request; they should be noted on the prescription and checked prior to administration. These must be included in the bedside checklist.

References

1. Bolton-Maggs PHB, Poles D, et al on behalf of the SHOT Steering Group. The 2016 Annual SHOT Report (2017) www.shotuk.org.

2. National Patient Safety Agency. NPSA Safer Practice Notice 14, Right Patient Right Blood (2006). Safer Practice Notices http://www.nrls.npsa.nhs.uk/resources/collections/right-patient-right-blood/ .

3. NHS England. Never Events List 2015/16 https://www.england.nhs.uk/wp-content/uploads/2015/03/never-evnts-list-15-16.pdf .

4. Milkins C, Berryman J, Cantwell C, Elliott C, Haggas R, et al. Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories. Transfusion Medicine (2013) 23: 3-35.

5. Treleaven J, Gennery A, March J, Norfolk D, Page L et al. Guidelines the use of irradiated blood components prepared by the British Committee for Standards in Haematology blood transfusion task force. British Journal of Haematology (2010) 152: 35-51.

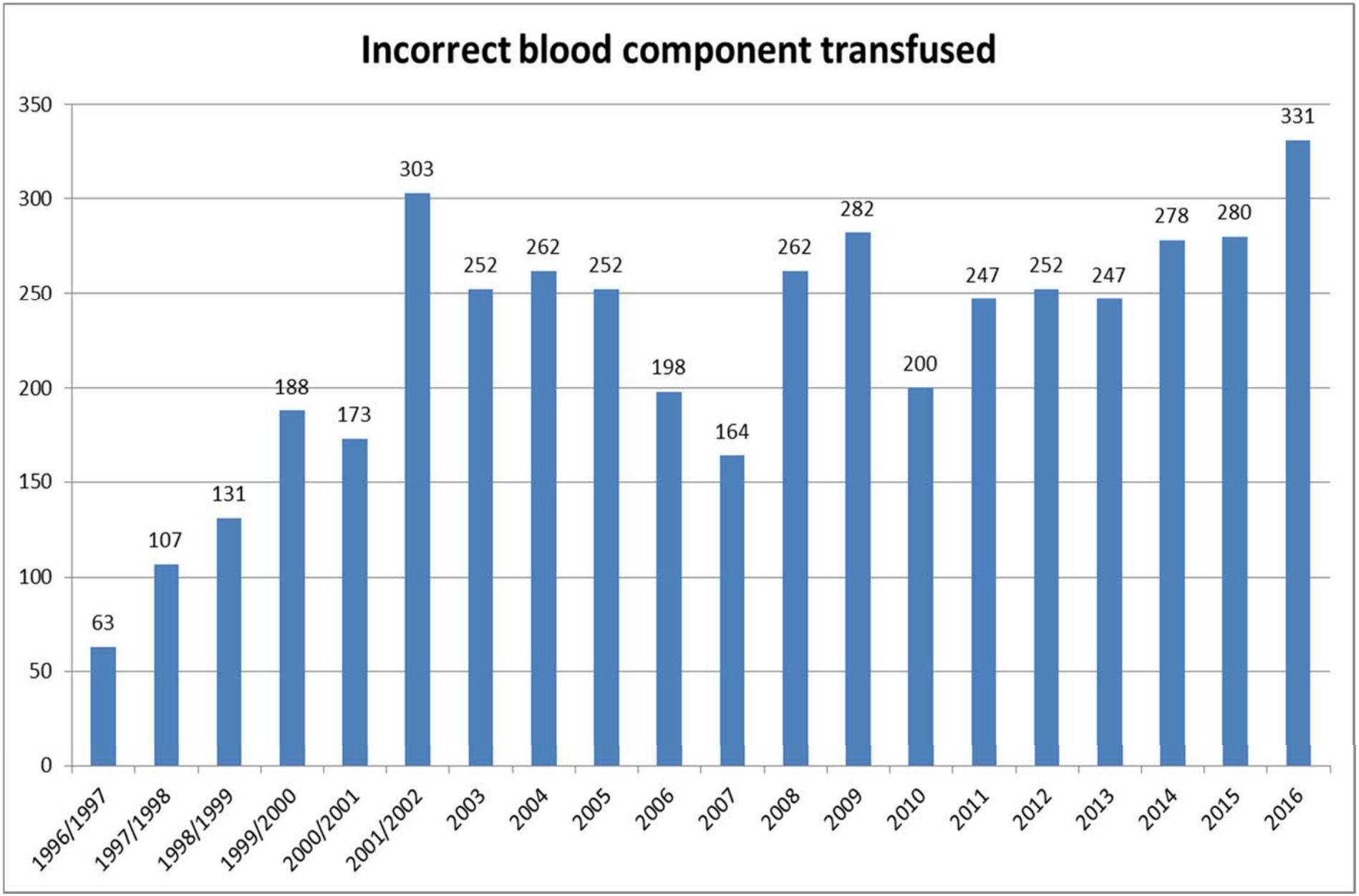


Figure 1: Annual numbers of incorrect blood components transfused including those where specific requirements were not met

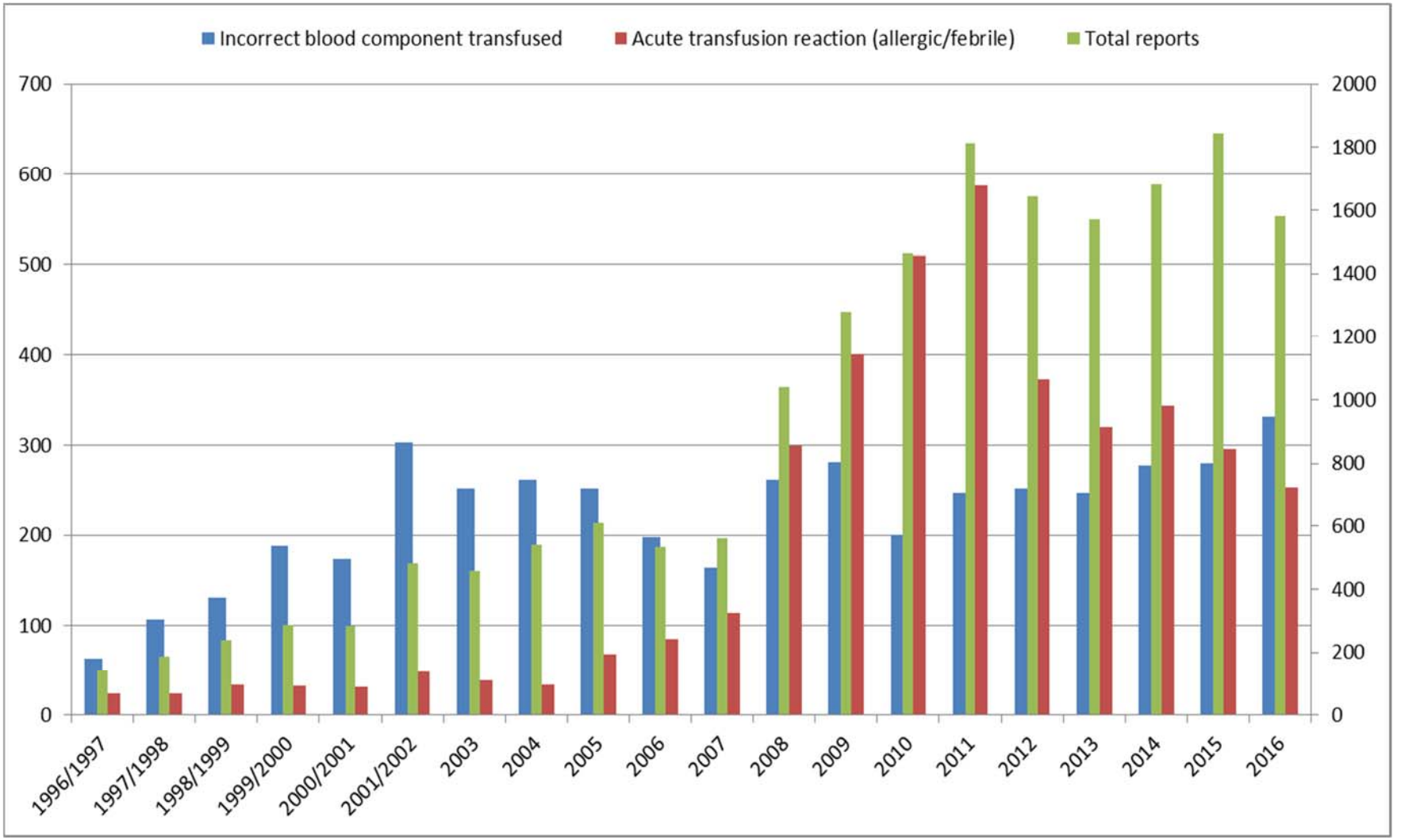


Figure 2: Annual totals for all reports, acute transfusion reactions (allergic/febrile) compared with incorrect blood components transfused