Annual SHOT Report 2014 – Supplementary Information

Chapter 14: Acute Transfusion Reaction (ATR)

DATA SUMMARY
Total number of cases: n=343

Implicated components	
Red cells	**169**
Fresh Frozen Plasma	**43***
Platelets	**116[$]**
Cryoprecipitate	**2**
Granulocytes	**0**
Anti-D Ig	**0**
Multiple components	**13**
Unknown	**0**

Mortality/morbidity	
Deaths *definitely* due to transfusion	**0**
Deaths *probably/likely* due to transfusion	**0**
Deaths *possibly* due to transfusion	**0**
Major morbidity	**104**
Potential for major morbidity *(Anti-D or K only)*	**0**

Gender	
Male	**181**
Female	**161**
Not known	**1**

Age	
≥ 18 years	**297**
16 years to <18 years	**7**
1 year to <16 years	**32**
>28 days to <1 year	**2**
Birth to ≤28 days	**2**
Not known	**3**

Emergency vs. routine and core hours vs. out of core hours	
Emergency	**25**
Urgent	**68**
Routine	**243**
Not known	**7**
In core hours	**200**
Out of core hours	**50**
Not known/Not applicable	**93**

Where transfusion took place	
Emergency Department	**8**
Theatre	**20**
ITU/NNU/HDU/Recovery	**40**
Wards	**176**
Delivery Ward	**4**
Postnatal	**3**
Medical Assessment Unit	**12**
Community	**4**
Outpatient/day unit	**66**
Hospice	**1**
Antenatal Clinic	**0**
Other	**6**
Unknown	**3**

ITU=Intensive therapy unit; NNU=Neonatal unit; HDU=High dependency unit

**Including 5 reactions to Methylene Blue-treated FFP (MB-FFP) and 5 reactions to Solvent Detergent-treated FFP (SD-FFP)*

[$] *Including 8 HLA-matched*

Acute Transfusion Reactions (ATR) - Previous Recommendations

Year first made	Action	Recommendation
2013	**Hospital Transfusion Teams (HTT)**	Reporters should report cases fully, including clinical data such as temperature and blood pressure prior to, and during, a reaction, especially if fever or hypotension is reported
2013	**HTTs, Histocompatibility and Immunogenetics laboratories**	Patients who have experienced transfusion reactions should only be tested for platelet or granulocyte antibodies within guidelines such as those set out in England by the National Health Service Blood and Transplant (NHSBT) in their Histocompatibility and Immunogenetics user guide [54]. The main indication here would be persistence of severe reactions despite the use of platelets where the plasma has been removed and replaced by suspension medium
2013	**HTTs, Day case wards**	Outpatient departments and day case units should ensure patients have information about what to do if they experience a transfusion reaction after leaving the unit
2012	**Hospital Transfusion Teams (HTT), General Practitioners**	Transfusions should only be performed where there are facilities to recognise and treat anaphylaxis, according to UK Resuscitation Council (UKRC) guidelines. This recommendation is also relevant for other transfusion-related emergencies such as respiratory distress caused by transfusion-associated circulatory overload (TACO) or transfusion-related acute lung injury (TRALI). In supplying to community hospitals or for home transfusions, providers must ensure that staff caring for patients have the competency and facilities to deal with adverse incidents. This is particularly relevant in the light of proposed increase in treatment of patients outside the secondary care setting
2012	**HTT**	In anaphylaxis, mast cell tryptase testing is not routinely required, but if needed because the clinical diagnosis of anaphylaxis is in doubt, to be of value, serial mast cell tryptase levels are needed: a single result is of little diagnostic value
2012	**HTT**	Mild acute transfusion reactions (ATRs) as defined by International Haemovigilance Network/International Society for Blood Transfusion (IHN/ISBT) (i.e. fever >38°C and a rise of 1-2°C from pre-transfusion values, but

		no other symptoms; or transient flushing, urticaria or rash) should not be reported to SHOT
2011	**Hospital Transfusion Team (HTT)**	Any reactions to fresh frozen plasma (FFP) (all types) should be reported to SHOT and investigated in detail
2011	**Hospital Transfusion Committees (HTCs)**	If a transfusion reaction is considered sufficiently severe that bacterial contamination is considered as a possible diagnosis, clinicians must contact the blood service to discuss whether a recall of associated components from the donation is necessary. This applies even when the hospital performs its own bacterial testing of the component
2011	**Haematologists**	Patients who have experienced an anaphylactic transfusion reaction should be discussed with an immunologist regarding further investigation and management
2010	**HTCs**	Transfusions should only be performed where there are facilities to recognise and treat anaphylaxis, according to UK Resuscitation Council (UKRC) guidelines. In supplying to community hospitals or for home transfusions, providers must ensure that staff caring for patients have the competency and facilites to deal with this adverse reaction
2009	**HTCs, HTTs**	IgA should be measured in all patients who experience severe allergic or anaphylactic reactions. Measurement of IgA will help assess the relevance of IgA deficiency, and has clinical relevance for the patient, as it may indicate part of the spectrum of common variable immunodeficiency.
2009	**HTCs, HTTs**	All moderate and severe transfusion reactions should have investigations performed. Core investigations should include Full Blood Count, U&E, LFT, repeat G&S, and urinalysis. Additional investigations should be performed as dictated by the patient's symptoms. In view of recent cases of bacterial transfusion-transmitted infection presenting with atypical symptoms and signs, consideration should be given to culture of the component and the patient's blood in severe reactions, even when the reaction appears to be allergic. Such cases should be discussed with a blood service consultant, who will decide whether to perform a recall of associated components.
2008	**HTCs, HTTs**	It cannot be assumed that all adverse reactions to blood or products are due to an ATR as currently defined in this chapter. Unless the diagnosis is clear, patients whose reactions are moderate or severe***** should be fully investigated, with a view to identifying other potentially serious causes of the symptoms such as TRALI, bacterial contamination, TACO or haemolysis. In addition, it should be borne in mind that symptoms may be

		due to the patient's underlying condition or other intercurrent illness. Hospitals should have a policy for the investigation and management of ATRs, based on current best practice. An update of BCSH guidelines is in progress. • *Previously this recommendation read:* *'… reactions severe enough to warrant stopping'. However, a review of reports indicates that in nearly all such cases transfusions are discontinued.* •
2008	**HTCs, HTTs**	As the mechanism of ATR is still not clear, the role of unselected testing for HLA, HPA or HNA antibodies appears very limited.[32] Patients who experience anaphylactic or severe allergic reactions after platelets should have an increment measured between 1 and 24 hours after transfusion. A severe reaction could indicate platelet refractoriness, in which case HLA testing is indicated. Otherwise, for severe allergic reactions without refractoriness, the next step should be a trial of PAS-suspended platelets, or washed components, before embarking on HLA testing.
2007	**Consultant Haematologists with responsibility for transfusion**	Prothrombin complex concentrate (PCC), rather than FFP, is the product of choice for the reversal of oral anticoagulation (warfarin) in patients with major bleeding. In the absence of major bleeding, PCC could be used for warfarin reversal for emergency surgery, and FFP only used if concentrate is not available.
2007	**HTCs, HTTs**	Hospitals should have a policy that ensures that serious adverse reactions to transfusions are recognised and reported. This is a legal requirement under the BSQR
2006	**HTTs**	Serious transfusion reactions can occur at any stage during the transfusion, emphasising the need to keep all patients visible and accessible to nursing staff.