Background
Increasing numbers of cases of TACO are reported to the UK haemovigilance scheme, Serious Hazards of Transfusion (SHOT) year on year. This is a serious complication with death or major morbidity (admission to intensive care and ventilation) in 48%. Although most often reported in older patients, it can occur at any age (Figure 1). In the initial presentation other causes of transfusion-associated respiratory distress must be considered including transfusion-related acute lung injury and allergic reactions which can be difficult to distinguish from TACO.

Current diagnostic criteria for TACO are unsatisfactory. The International Society of Blood Transfusion (ISBT) definition (used for SHOT analysis until 2012) is under revision (draft revised ISBT - DRISBT) which includes cardiac imaging and BNP levels. In 2013 SHOT applied modified ‘key features’ (KF), and identified significantly more ‘highly likely’ TACO cases than the ISBT definition alone, using clinical and other supportive evidence.

Current ISBT definition: Any 4 of the following within 6 hours of transfusion
- Acute respiratory distress
- Tachycardia
- Increased blood pressure
- Acute or worsening pulmonary oedema
- Evidence of positive fluid balance

Revised ISBT definition: Up to 12 hours post transfusion with:
Primary features
- Bilateral infiltrates on imaging
- Enlarged cardiac silhouette on chest imaging
- Evidence of fluid overload (positive fluid balance or diuretic response)
Supportive features
- Elevated BNP or NT-pro BNP
- Increased mean arterial pressure or increased pulmonary wedge pressure

Results
Figure 2 shows that DRISBT resulted in classification of more cases as ‘highly likely’ (43%) and compared to ISBT (19%) but more had the probability down-graded due to absence of cardiac imaging, other supportive features (MAP, BNP, CVP) or onset after 12 hours. Cardiac size was rarely reported (6/91 cases). Blood pressure was reported in 67/91 (74%) and BNP was only measured once. More cases were identified as ‘highly likely’ or ‘probable’ TACO using KF (86%) or CPKF (85%).

Conclusions
Both ISBT definitions exclude TACO in 25% SHOT-reported cases, often due to insufficient data. We conclude that these definitions are unsatisfactory and would lead to under-diagnosis. TACO should be considered and reported when a patient develops circulatory overload requiring treatment even when initially triggered by other intravenous fluids. Increased recognition of volume intolerance should prompt clinicians to take preventative action.