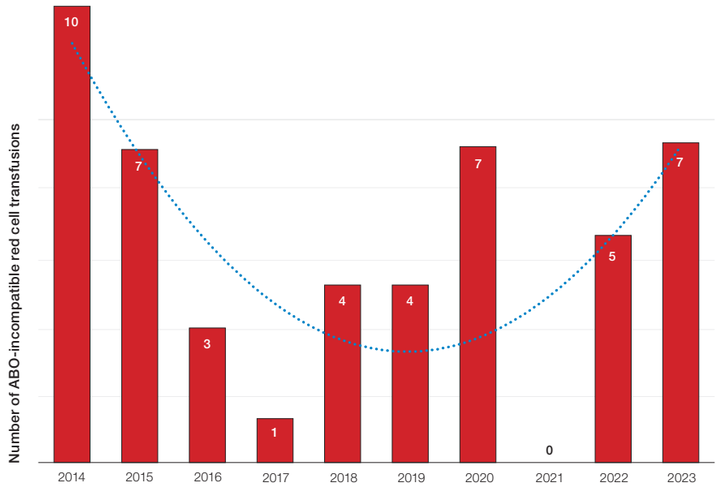
Key recommendations

Main recommendation 1–Addressing patient identification errors to enhance transfusion safety: Accurate and complete identification of patients receiving transfusions is essential for patient safety and should be reflected in clinical and laboratory settings and embedded in transfusion practice.

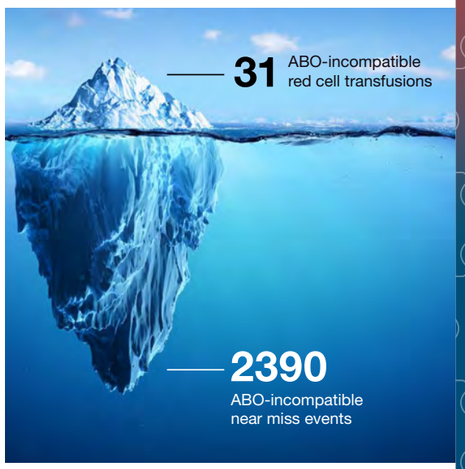
Main recommendation 2–Safe staffing to support safe transfusions: Healthcare leaders should review their organisation's workforce needs to ensure that appropriate staffing is in place with future planning, including digital transformation to support a safe transfusion service.

Main recommendation 3–Effective, timely communications to ensure safe transfusions: Staff should receive appropriate training on effective communication skills including cultural sensitivity. Feedback mechanisms must be in place to ensure continuing improvement in processes with optimal use of technology to support safe communications.

ABOi red cell transfusions 2014-2023



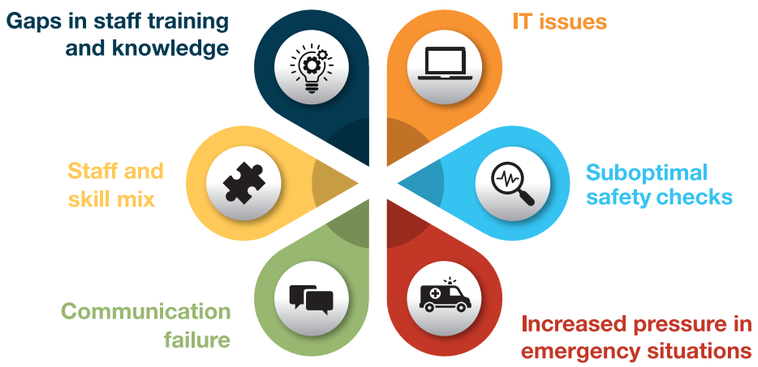
ABOi red cell transfusions 2016-2023: small numbers of actual events (n=31) but many near misses (n=2390)



SHOT
Serious Hazards of Transfusion

ANNUAL SHOT REPORT 2023 SUMMARY

Contributory factors for incorrect blood component transfused (IBCT) errors reported in 2023



Paediatric SHOT summary for 2023

Paediatric reports account for 7.1% (274/3833) of all reports to SHOT including near miss and right blood right patient events. Neonates and infants represent a third of paediatric cases. There was 1 death possibly related to transfusion (imputability 1). This was a possible case of TANEC.

Transfusion delays continue to be reported. Communication issues, blood grouping issues, delays in decisions for concessionary release and delays in ordering components from Blood Services were all cited as reasons for delays. Laboratories should have clear policies for rapid, concessionary release of blood components, including roles and responsibilities.

There continue to be reports of neonates receiving adult emergency O D-negative red cells. Neonatal/infant specific emergency components must be clearly distinguished from adult components when stored together in satellite refrigerators with staff trained on correct selection in an emergency.

The paediatric transfusion formula remains the best way to calculate the volume of red cells for transfusing a child. Hospitals should ensure the correct use of the paediatric red cell transfusion formula, with the Hb units in g/L.

Pulmonary complications of transfusion in children continue to occur. Although a separate TACO risk assessment for paediatrics does not exist, many of the risk factors apply. Caution is needed when prescribing transfusions in young children to ensure correct volume is administered.

If a neonate is transferred between hospitals, any history of prior transfusion must be communicated to the receiving transfusion laboratory. Caution is required when interpreting neonatal blood groups, as prior transfusion may result in a mixed field or group misinterpretation.

TACO pre-transfusion risk assessment

TACO=transfusion-associated circulatory overload

TACO Risk Assessment		YES	NO
	Does the patient have any of the following: diagnosis of 'heart failure', congestive cardiac failure (CCF), severe aortic stenosis, or moderate to severe left ventricular dysfunction?		
	Is the patient on a regular diuretic?		
	Does the patient have severe anaemia?		
	Is the patient known to have pulmonary oedema?		
	Does the patient have respiratory symptoms of undiagnosed cause?		
	Is the fluid balance clinically significantly positive?		
	Is the patient receiving intravenous fluids (or received them in the previous 24 hours)?		
	Is there any peripheral oedema?		
	Does the patient have hypoalbuminaemia?		
	Does the patient have significant renal impairment?		

If Risks Identified	YES	NO
Review the need for transfusion (do the benefits outweigh the risks)?		
Can the transfusion be safely deferred until the issue is investigated, treated or resolved?		

If Proceeding with Transfusion: Assign Actions	TICK
Body weight dosing for red cells	
Transfuse a single unit (red cells) and review symptoms	
Measure fluid balance	
Prophylactic diuretic prescribed (where appropriate/not contraindicated)	
Monitor vital signs closely, including oxygen saturation	

Name (PRINT):		Due to the differences in adult and neonatal physiology, babies may have a different risk for TACO. Calculate the dose by weight and observe the notes above.
Role:		
Date:	Time (24hr):	
Signature:		

Additional pressures on transfusion laboratories evident in 2023 SHOT data

To ensure safe transfusions in patients with haemoglobinopathy, the following should be considered:

Alloimmunisation and HTR are a significant risk of transfusion in haemoglobinopathy patients and in particular SCD. The importance of weighing up the risks and benefits of transfusion and the need to provide blood components that meet the requirements for these patients may not be appreciated by healthcare professionals without specific expertise.

All haemoglobinopathy patients should have a baseline extended red cell phenotype or genotype prior to transfusion.

It is important to gain a full transfusion history from the patient and inform the transfusion laboratory when patients present to an unfamiliar hospital. The national database (Sp-ICE or equivalent) should be checked, and the patient's base hospital transfusion laboratory asked for previous transfusion records.

Haematology teams must be involved in the management of haemoglobinopathy patients presenting to secondary care and be consulted regarding transfusion decisions.

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PAUSE checklist for transfusion laboratories

P — PATIENT IDENTIFICATION
Are all the details correct and match on sample/form/label/LIMS?

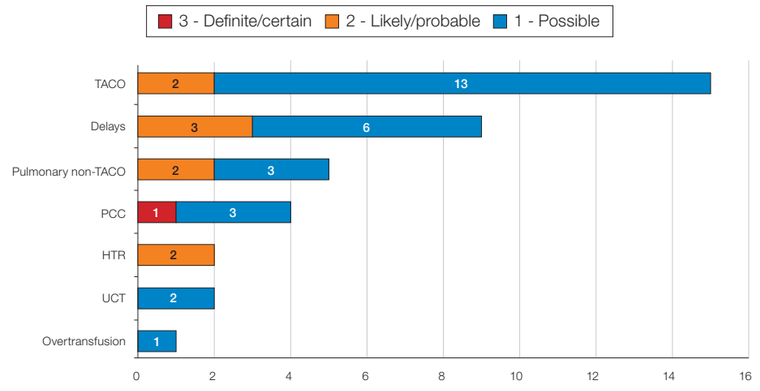
A — AUTHORISED
Have all required tests been completed and authorised, including antibody investigation?

U — UNIT NUMBER
Does the unit number match the compatibility label?

S — SELECTION OF COMPONENT
Is it as requested? Is it ABO and D compatible? Does it meet all specific requirements?

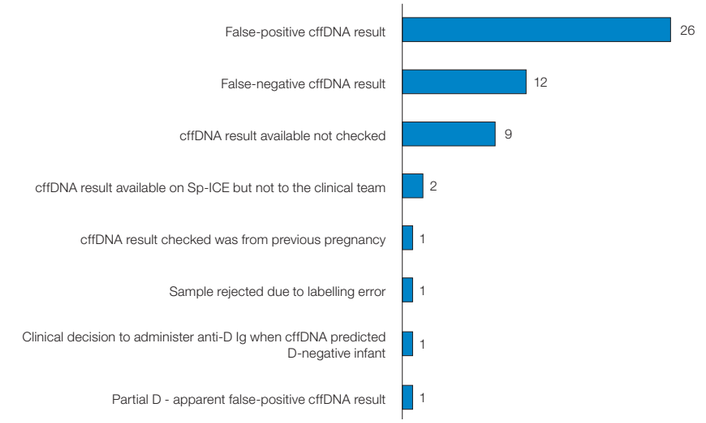
E — EXPIRY
Will the unit expire before required date/time? Will sample expire before required date/time?

Deaths related to transfusion with imputability reported in 2023 (n=38)



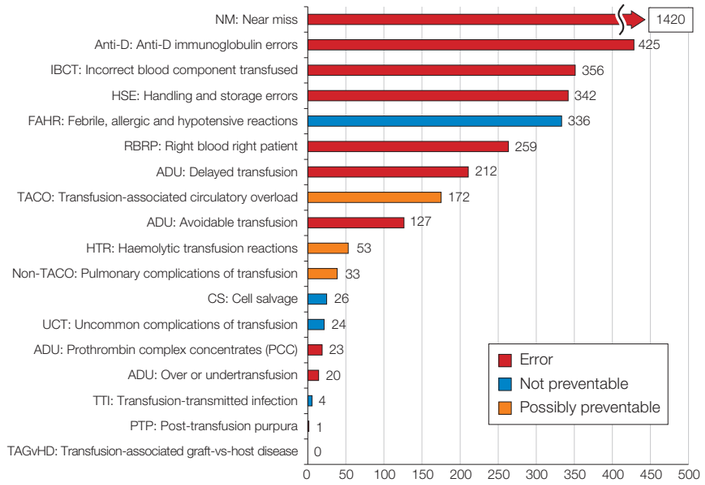
HTR=haemolytic transfusion reactions; UCT=uncommon complications of transfusion; TACO=transfusion-associated circulatory overload; PCC=prothrombin complex concentrates

Number and breakdown of cases related to non-invasive prenatal screening for *RHD* (n=53)

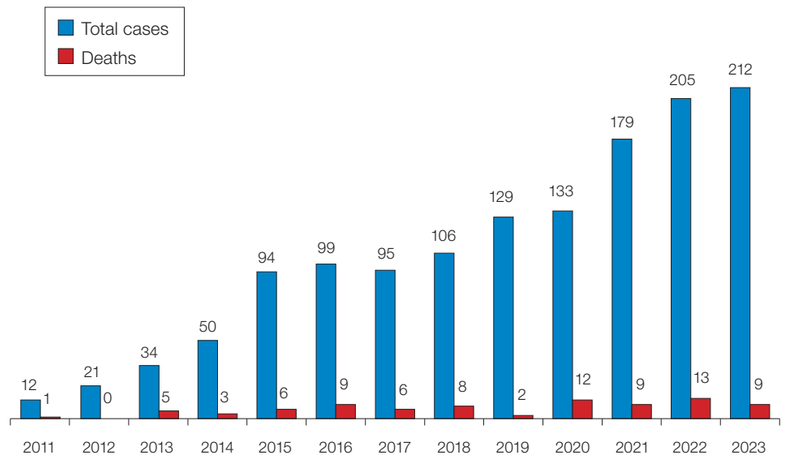


cffDNA=cell free fetal deoxyribonucleic acid; Ig=immunoglobulin; Sp-ICE=Specialist Services electronic reporting using Sunquest's Integrated Clinical Environment

Summary data for 2023, all categories (includes RBRP and NM) (n=3833)



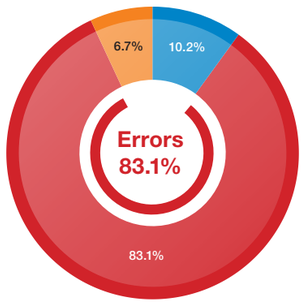
Delayed transfusions by year 2011-2023



Key laboratory recommendations in 2023

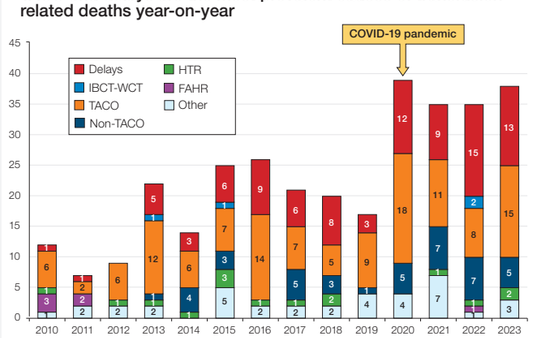
- Patients should not die or suffer harm from avoidable delays in transfusion. Where transfusion needs are complex, laboratory staff should have access to and follow specialist advice to provide the most suitable component available. Hospital policies and processes must reflect this
- Staff must have protected time for training and education to provide a safe service
- Bespoke operational roles should be considered for project/change implementation to ease the pressure on routine staff
- Policies for lone working should be reviewed to identify when extra support or reallocation of tasks are required
- A just and learning safety culture is vital to support the safety of patients and staff members, and not worsen existing recruitment and retention pressures in the laboratory

Errors account for most reports in 2023 (n=3184/3833)



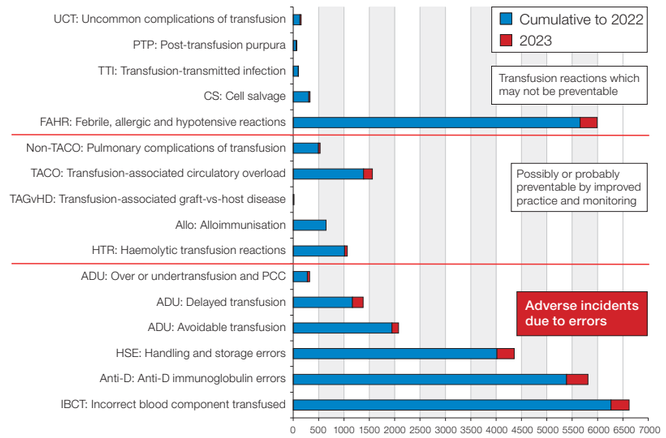
3184 Errors (all preventable)
391 Not preventable
258 Possibly preventable

Transfusion-related deaths 2010-2023 (n=320, all imputabilities) TACO and delays are the most prevalent causes of transfusion-related deaths year-on-year



IBCT-WCT=incorrect blood component transfused-wrong component transfused; TACO=transfusion-associated circulatory overload; HTR=haemolytic transfusion reaction; FAHR=febrile, allergic and hypotensive reactions
Delays include 1 delay due to PCC in 2019, 2 in 2022 and 4 in 2023; 'Other' includes 1 each for post-transfusion purpura, transfusion-associated graft-versus-host disease (2012) and anti-D Ig related; there were 9 in the avoidable, over or undertransfusion category, 3 transfusion-transmitted infections, and 22 deaths related to other unclassified reactions

Cumulative data for SHOT categories 1996-2023 (n=31031)



Please note that data on alloimmunisation is no longer collected by SHOT since 2015.

Leading and lagging safety indicators