Key messages (see chapters 3 and 4)

Numbers overview

- Errors remain the main cause of reports 83.0% (3358/4046), with near misses being the single highest category, 33.9% (1370/4046).
- Risk of transfusion-related death: ~1 in 40,000 and risk of serious harm: ~1 in 13,500 components issued (includes SD-FFP data) in the UK.
- There were no confirmed or probable transfusion-transmitted infections reported in 2025.

Transfusion-related deaths

- There were 54 transfusion-related deaths, with only 1 definitely linked to transfusion (acute haemolytic transfusion reaction).
- Pulmonary complications and transfusion delays were leading causes of death, 27 and 15 cases respectively.

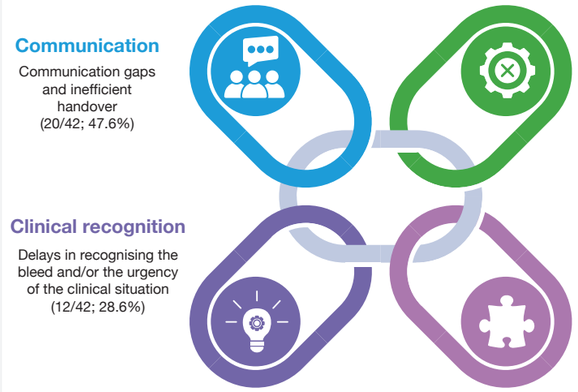
Safety gaps and strategies to address them

- Avoidable harm is often driven by communication issues, assumptions, and distractions, compounded by staffing pressures, weak safety culture, and inadequate information technology (IT) systems.
- Improve patient safety by applying human factors thinking, strengthening system-level learning, preventing staff fatigue, and investing in staff training, in safety and quality improvement.

Next steps

- Strengthen transfusion safety through urgent, coordinated action: embed SHOT Transfusion Safety Standards, close system and practice gaps (including those highlighted in the Infected Blood Inquiry report), and target improvements where needed.
- Ensure adequate resourcing and appropriate prioritisation to support safer systems, protecting both patients and staff.

Common themes identified that contributed to delays during major haemorrhage in 2025 (see chapter 12)



ABO-incompatible red cell transfusions 2016-2025: few events (n=37) but many near misses (n=2949) (see chapters 3, 10 and 16a)

SHOT
Serious Hazards of Transfusion

ANNUAL SHOT REPORT 2025 SUMMARY

Paediatric SHOT summary for 2025 (see chapter 26)

Paediatric reports account for 9.1% (216/2381) of total reports to SHOT excluding near miss and right blood right patient events. Half, 50.5% of the reports were in patient's 1-<16 years of age and 38.9% cases were in children <1 year old.

Transfusion delays in children continue to be significant and occur at all stages of the pathway. There was one neonatal death following a delay in provision of red cells (imputability 1=possible). Most delays were due to lack of availability of appropriate blood component/s and knowledge gaps about the component specification or patient requirement.

Paediatric reports were over-represented in febrile, allergic and hypotensive reactions, incorrect blood component transfused (in both specific requirements not met and wrong component transfused), delayed and under or overtransfusion, uncommon complications of transfusion and in haemolytic transfusion reactions.

Neonatal red cell exchange transfusions are now rarely performed and are an area of vulnerability. Clear protocols for the practicalities and process of exchange transfusion are therefore important.

Key laboratory messages in 2025 (see chapter 18)

- Laboratory errors and near misses accounted for 692/4046 (17.1%) of SHOT reports analysed in 2025.
- There were 3 cases of ABO-incompatible (ABOi) transfusion of plasma components, all due to incorrect component selection.

- Laboratory errors contributed to 2 patient deaths, both due to delayed transfusions. A further 56 delays had demonstrable patient impact.
- Laboratory errors contributed to 9 cases of major morbidity (MM), more than doubling from 4 cases in 2024. MM was caused by delays (4/9) and sensitisation to the D (3/9) or K antigen (2/9) in patients of childbearing potential.

- Gaps were identified in the following areas: capacity planning, staff support systems, information technology functionality, training for newly qualified staff, and post-investigation action and effectiveness review.
- Key strengths included evidence of duty of candour plus the initial incident identification and review process.

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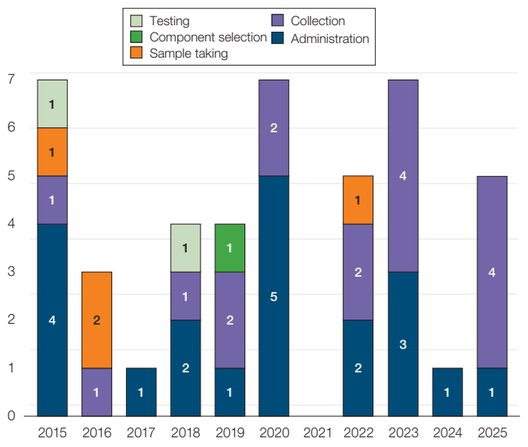
Human factors and ergonomics – key summary points (see chapter 8)

Human factors investigations are becoming more embedded in practice – The use of human factors and ergonomics (HFE) frameworks in incident investigations has continued to increase, demonstrating improved recognition of wider system influences on errors rather than focusing solely on individual performance.

Staffing issues and related factors continue to pose a significant patient safety risk – Staff fatigue, high workload pressures, and shortages—particularly when staffing levels do not align with demand—continue to impact care. In addition, communication issues and organisational pressures further contribute to risks to patient safety.

Improvement actions remain focused on people rather than systems – Actions frequently rely on education and training, while fewer interventions address underlying system and organisational factors, indicating an opportunity for more sustainable safety improvements.

ABO-incompatible red cell transfusions by step in the transfusion process 2015-2025 (see chapters 3 and 10)



Key insights from reports relating to haemoglobin disorders (n=136) (see chapter 27)

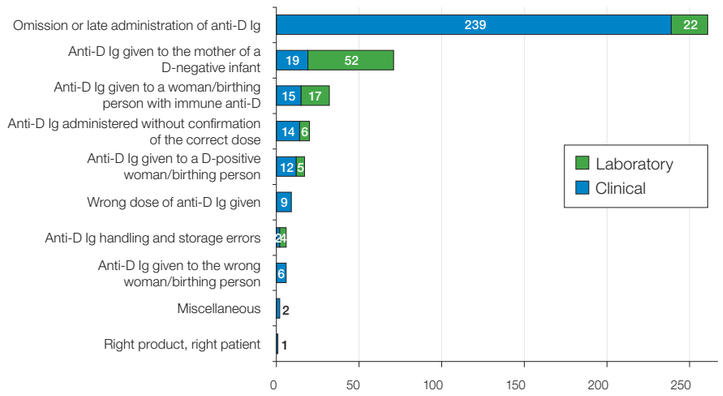
Reports related to haemoglobin disorders submitted to SHOT continue to increase, mostly driven by reports of haemolytic transfusion reactions (HTR), incorrect blood component transfused-specific requirements not met (IBCT-SRNM) and delayed transfusions. There were 6 deaths related to transfusion, 1 related to delay, the other 5 related to HTR. All deaths were in patients with sickle cell disorder (SCD). There were no deaths with imputability 3 (definite).

Delayed or failed recognition of specific requirements is a frequent cause of delays in SHOT reports; all medical and laboratory staff need to be aware that haemoglobinopathy patients have specific requirements for transfusion. Issues were more likely to be seen in cases where the patient was new to the hospital, being cared for by another team, or when transfusion was more urgent.

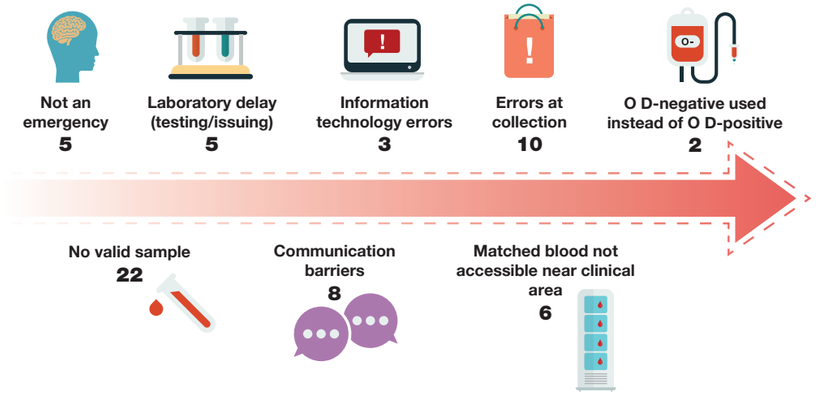
Reports submitted to SHOT describe areas of good practice, such as prompt, appropriate treatment of transfusion reactions, highlighting that learning from incidents is taking place within local organisations. There is increased reporting on the use of monoclonal antibodies as treatment for HTR, particularly in severe cases.

During consent and shared decision making for transfusion, patients with SCD should be informed specifically about the increased risk of alloimmunisation and HTR. This should include the potential implications of these on future transfusions. Clinicians should be familiar with the clinical features of HTR, including hyperhaemolysis, and ensure there are local protocols to support investigation and management.

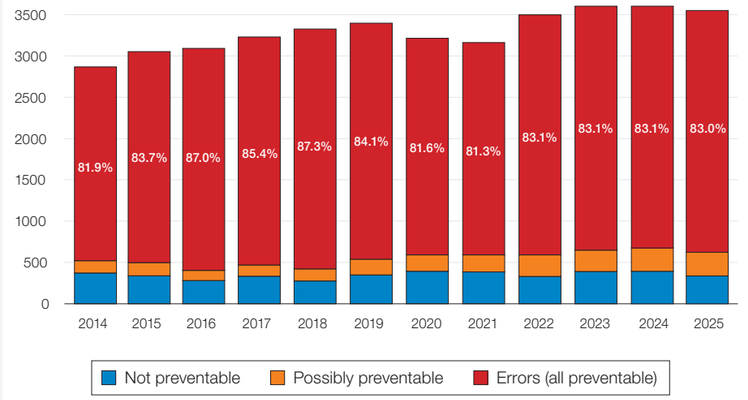
Distribution of anti-D immunoglobulin (Ig) related errors reported in 2025 (n=425) (see chapter 9)



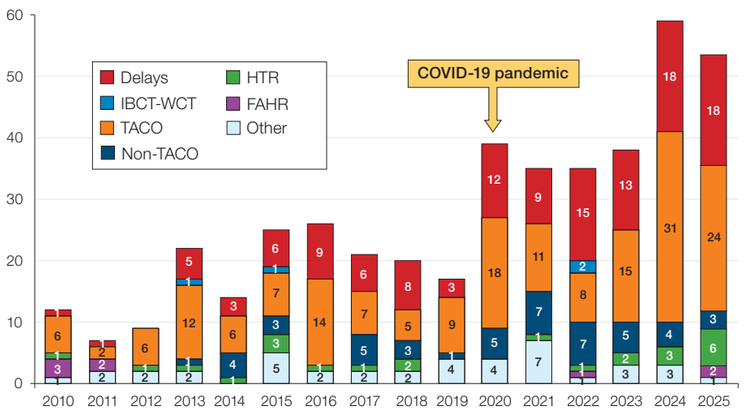
Errors during the transfusion pathway resulting in avoidable use of emergency group O (n=61) (see chapter 13)



Errors as a percentage of total reports 2014-2025 (see chapter 8 onwards)



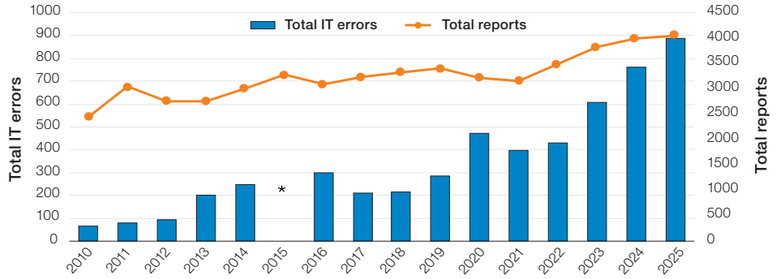
Transfusion-related deaths by SHOT category, 2010 to 2025 (n=433) (see chapter 3)



FAHR=febrile, allergic, and hypotensive reactions; HTR=haemolytic transfusion reaction; IBCT-WCT=incorrect blood component transfused-wrong component transfused; TACO=transfusion-associated circulatory overload

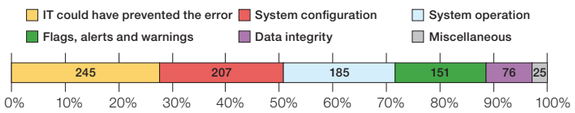
Delays include 1 delay related to PCC in 2019, 2 in 2022, 4 in 2023 and 3 in 2025; 'Other' includes 1 each for post-transfusion purpura, transfusion-associated graft-versus-host disease (2012) and anti-D Ig related; there were 11 in the avoidable, over or undertransfusion category, 3 transfusion-transmitted infections, and 24 deaths related to other unclassified reactions

Trend in IT-related reports vs total reports 2010-2025 (see chapter 19)



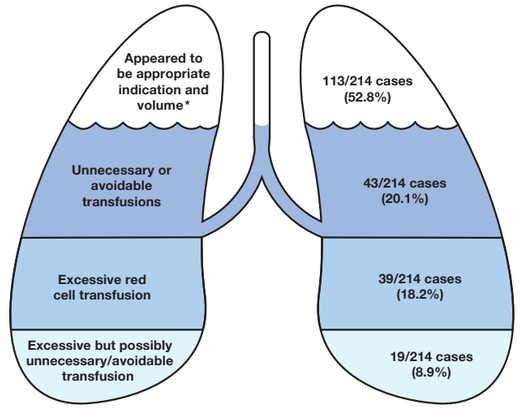
** No detailed IT incident analysis was undertaken in 2015; the report focused instead on reviewing recurrent themes and reiterating key messages and recommendations from previous years*

Distribution of cases across type of IT issues in 2025



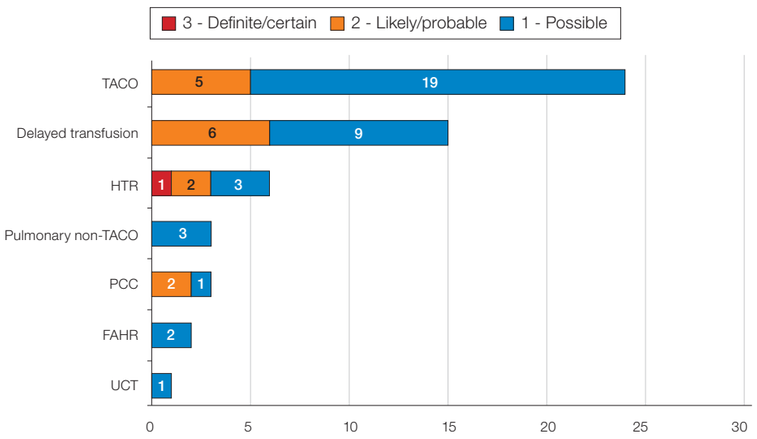
Unnecessary transfusion or excessive volume of red cells in reported TACO cases in 2025 (see chapter 21a)

Almost half of reported TACO cases had evidence of unnecessary/avoidable or excessive transfusion.

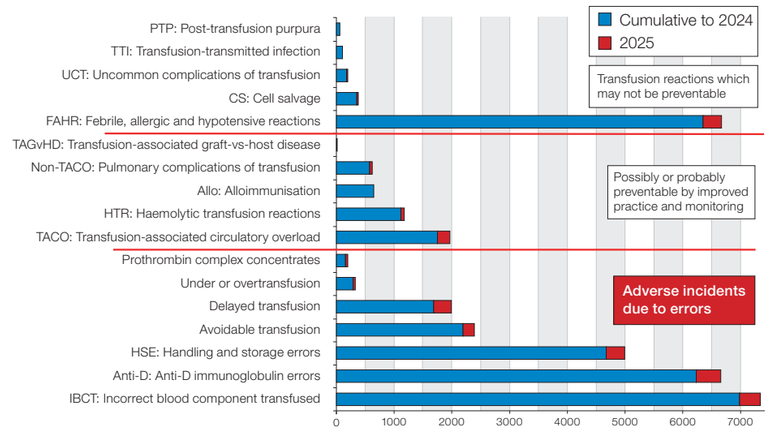


**Note that the volume of transfusion, body weight, pre-and post-transfusion haemoglobin levels are not universally reported and therefore unnecessary/avoidable and excessive transfusion may be under-reported.*

Deaths related to transfusion with imputability reported in 2025 (n=54) (see chapter 3)



Cumulative data for SHOT categories 1996-2025 (n=35724) (see chapter 3)



Data on alloimmunisation has not been collected by SHOT since 2015.

Contributory factors to incorrect blood component transfused errors (see chapter 10)