

12a Delayed Transfusions n=212

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Definition:

Where a transfusion of a blood component was clinically indicated but was not undertaken or non-availability of blood components led to a significant delay (e.g., that caused patient harm, resulted in admission to ward, or return on another occasion for transfusion).

Key SHOT messages

- Poor communication at multiple points during the patient's care is common and exacerbates delays
- Delayed recognition of bleeding increases morbidity and mortality. Low blood pressure should alert clinicians to consider haemorrhage
- MHP are either not activated when indicated or not followed correctly
- Staffing issues contribute to delayed transfusions
- Lack of knowledge and awareness of correct procedures contributes to delays in transfusion

Recommendations

- Activation of MHP should be simple and standardised to avoid issues with hospital-specific procedures
- Hospitals should review their MHP and test them with drills and simulation to ensure they are fit for purpose. This should cover all the steps in the process from end-to-end and must include all staff groups involved
- MHP activations should be followed by a debrief with everyone involved to identify what went well and what could be improved
- Transfusion professionals should work closely with higher education institutes to ensure that the courses they are offering are fit for purpose and ensure all staff are equipped with the skills and knowledge they require to deliver safe transfusions

Action: Hospital transfusion committees, higher education institutes

Introduction

The number of delays in transfusion reported to SHOT has increased (n=212) when compared to the previous year (n=205) see Figure 12a.1. Incorrect activation of the MHP remains a key issue contributing to delays in transfusion, and this is consistent over the past 5 years. Increasing reports of delays prompted the publication of a CAS alert, with actions for hospitals (SHOT, 2022). A recent survey evaluating the effectiveness of the CAS national alert noted that 42% of responders did not have adequate resources to action the recommendations, and 71% identified staffing issues as the main barrier to implementing any actions. Inadequate staffing and poor skills mix in transfusion laboratories has increased over the last decade. See the 'Recommended resources' for a link to the survey report.

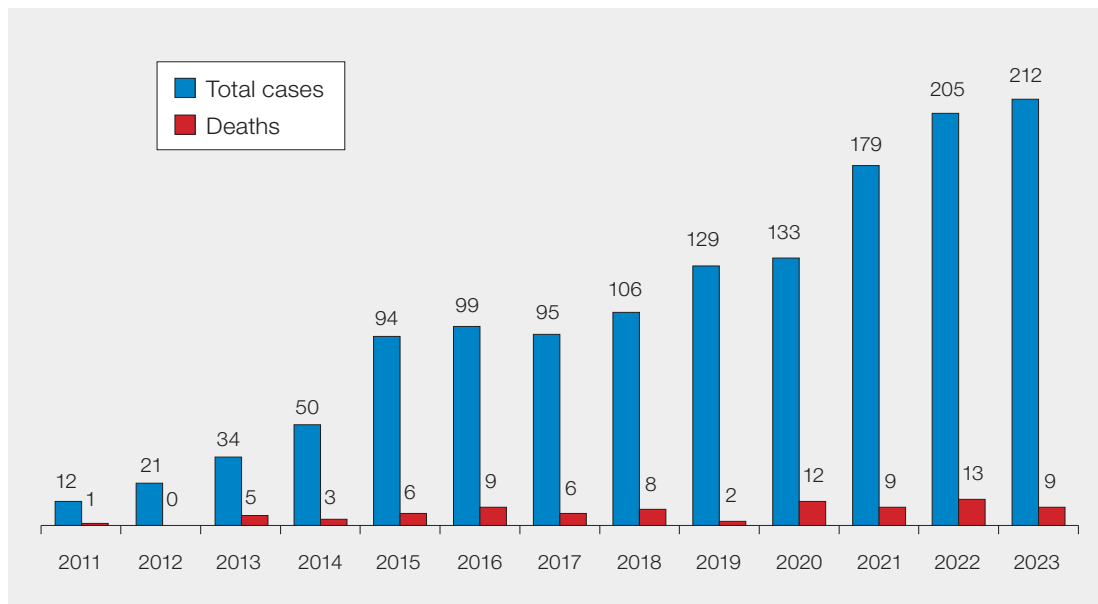


Figure 12a.1:
Delayed transfusions by year 2011-2023

Deaths related to transfusion n=9

There were 9 deaths reported due to delays. This compares with 13 deaths in 2022 and 9 in 2021. More than half of all deaths were associated with delays in urgent or emergency transfusions for patients in the ED. Common themes were delays in decision-making and missing vital steps in the transfusion process due to lack of knowledge, training, and poor staffing levels. In 4 cases, there were transfusion delays in patients with acute bleeding. Three deaths were probably related (imputability 2) and 6 were possibly related (imputability 1) to the transfusion delay.

Case 12a.1: Delay in red cell transfusion in patient with a GI bleed awaiting a hospital bed contributes to death

An elderly patient with haematemesis, dark stool and shortness of breath was attended at home by a paramedic crew. The patient had tachycardia and was pale with low blood pressure. The patient was taken as an emergency to the ED. On arrival there were delays offloading from the ambulance due to lack of available space. Whilst still in the ambulance, the patient began to deteriorate and despite escalating care from the paramedics and a haemoglobin of 38g/L, treatment was delayed by more than 2 hours and the patient passed away from a cardiac arrest.

Case 12a.2: Lack of understanding on how to activate the MHP contributes to patient death

A patient with a perforated duodenal ulcer was being managed as an outlier in a COVID-19 bay. The clinical team caring for the patient identified that the patient was bleeding and there was a requirement for urgent blood components. Due to unfamiliarity with the management of MH, staff failed to correctly activate the MHP. Instead, a doctor instructed a nurse, not directly involved in this patient's care, to 'get blood' without conveying the urgency. Lack of vital information caused confusion between the laboratory staff and the nurse as to what was expected. The communication difficulties were compounded by lack of understanding among staff about how to activate the MHP. The patient was in a COVID-19 bay and the rarity of major bleeding in a ward environment caused delay in blood transfusion which contributed to the death of this patient.

One case resulted in the death of a patient due to incorrect laboratory procedures with delay in recognition and subsequent treatment. This involved a patient who presented with cytopenia with a delay in the diagnosis of acute promyelocytic leukaemia and died of bleeding. This case is described in detail in Chapter 15, Laboratory Errors (Case 15.1).

i

Learning points

- Failure to communicate urgency of requests leads to delays in blood component provision. Ensure that requests for samples and blood components are clear and that the urgency is stated
- Good handover is essential especially when serious bleeding occurs out-of-hours
- Recognition of bleeding is crucial for timely and appropriate treatment
- Laboratory staff working in transfusion must be adequately trained and competency-assessed, especially in identifying urgent cases when 'lone working' out-of-hours

Major morbidity n=12

Seven of 12 reports that resulted in major morbidity were associated with MHP and 10/12 were due to delays in urgent (2) or emergency (8) transfusion.

Delays associated with MHP n=50

There has been a general increase in the number of delays associated with MHP over the last few years of SHOT reporting, see Figure 12a.2.

Figure 12a.2:
Number of delayed
transfusions
associated with
MHP 2016-2023

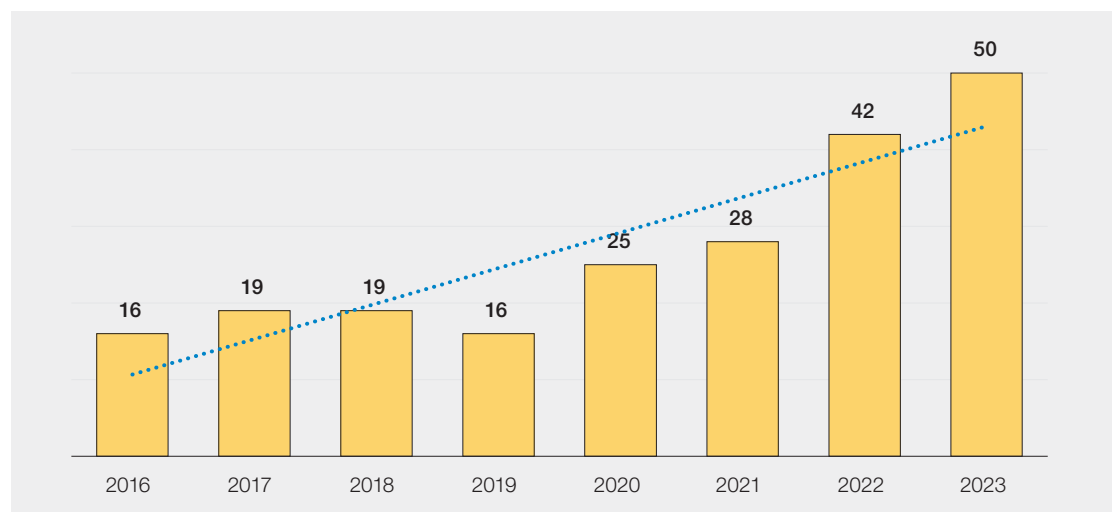


Figure 12a.3 illustrates the key factors contributing to delayed transfusion in major haemorrhage situations reported to SHOT in 2023.

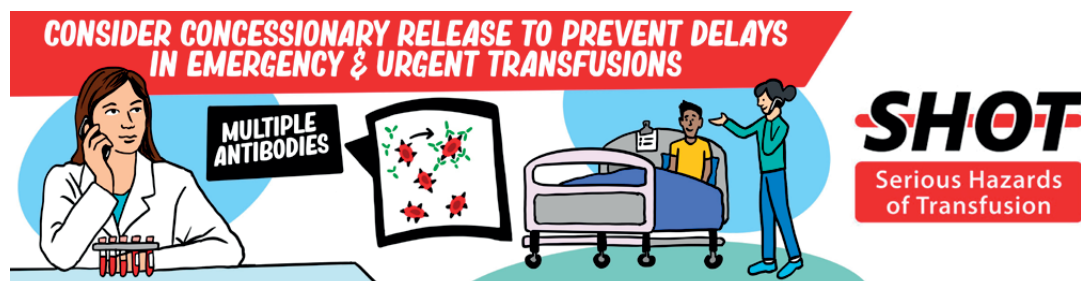
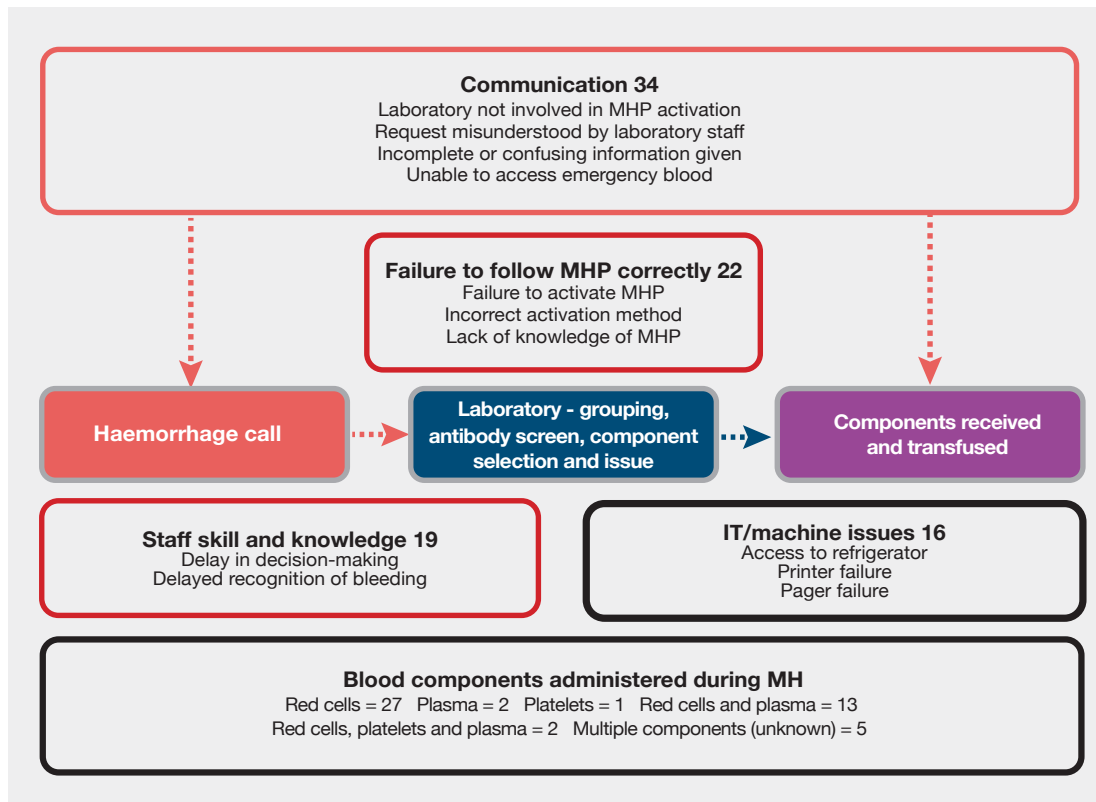


Figure 12a.3: Key factors contributing to delayed transfusions in major haemorrhage in 2023 (n=50)



MHP=major haemorrhage protocol; IT=information technology

Learning points

- Failure to communicate effectively in urgent situations causes unnecessary delays in transfusion
- MHP are either not activated when indicated or not followed correctly. Emergency procedures such as MHP should be simple and easy to follow



Laboratory errors n=56

Laboratory errors discussed here cover both hospital transfusion laboratories and Blood Services. Key themes identified in laboratory errors resulting in delays were lack of knowledge and training of staff (n=17) and failure in effective communication (n=18).

Case 12a.3: A sample that did not meet acceptance criteria was sent to the Blood Service resulting in unnecessary delay in transfusion

An elderly person requiring transfusion for the treatment of chronic anaemia had a blood sample taken for group and screen. The sample was accepted by the hospital transfusion laboratory and referred to the laboratory in the Blood Service for further testing. The Blood Service staff telephoned the hospital laboratory to inform them that the surname on the sample did not match the surname on the request form and therefore the sample had been rejected. This required a repeat sample and caused a delay in the provision of red cells for the patient.

The labelling error should have been detected earlier in the process which would have avoided the delay.

Case 12a.4: BMS decided not to thaw cryoprecipitate due to previous high levels of wastage

The MHP was activated for a patient with major bleeding post-surgery. Cryoprecipitate was ordered as part of the initial 'Pack 1'. The BMS working in the transfusion laboratory decided not to thaw the cryoprecipitate because they had encountered wastage of frozen components in a previous shift. This decision resulted in a 75-minute delay in the issue of cryoprecipitate. The patient recovered and survived.

Case 12a.5: Printer failure caused delay in transfusion

The MHP was activated for a patient suffering from a GI bleed. There was a delay in the blood components being issued as the printer failed to print labels. The BMS did not realise that the printer had run out of labels and tried to reprint. The BMS contacted senior staff at home for advice. The printer was reloaded with labels, but they were misaligned. The patient was given two units of red cells after a 15-minute delay.

Laboratory staff failed to use backup label printer/emergency unit labels to allow issue of units in a timely manner.



Learning points

- Awareness of contingency/back up plans is essential to ensure smooth processes when technical issues arise
- Worries about component wastage should not result in delays in component provision especially in emergency situations
- Timely communication can prevent additional delays

Blood Service errors n=8

There were 8 reports due to Blood Service issues that resulted in delay in transfusion, an increase compared to 1 in the 2022 Annual SHOT Report (Narayan, et al., 2023).

Case 12a.6: Incorrect red cell units sent to the hospital results in delayed transfusion

Samples were sent from a hospital transfusion laboratory to a Blood Service reference laboratory for further testing and crossmatching of red cell units. The reference laboratory completed the testing but sent the blood components to the wrong hospital. This error resulted in a 2-hour delay in treatment.



Learning points

- Clear and adequate communication between Blood Service staff and hospital laboratory staff is essential to prevent miscommunication and to avoid delays in testing and supply of urgent blood components
- The risk of blood components being sent to the wrong location can be reduced by ensuring there are sufficient checks in place before sending blood components to hospitals transfusion laboratories

Conclusion

Patients should not die or suffer harm from transfusion delays. Poor communication, lack of staff knowledge and skills contributes to many cases of delay especially during major haemorrhage. The recommended actions in the SHOT CAS alert will help address preventable transfusion delays and improve patient safety (SHOT, 2022). Staffing levels and skill mix have been identified as barriers for effective implementation of the recommendations and must be addressed.

Recommended resources

SHOT Bite No. 8: Massive Haemorrhage Delays

<https://www.shotuk.org/resources/current-resources/shot-bites/>

SHOT Video: Delayed Transfusion in Major Haemorrhage

<https://www.shotuk.org/resources/current-resources/videos/>

SHOT Webinar: Every Minute Counts

<https://www.shotuk.org/resources/current-resources/webinars/>

2018 National Comparative Audit of Major Haemorrhage

<https://hospital.blood.co.uk/audits/national-comparative-audit/reports-grouped-by-year/2018-audit-of-the-management-of-major-haemorrhage/>

Can you PACE yourself? The power of language to flatten hierarchy and empower multi-disciplinary healthcare teams in simulated critical scenarios

<https://www.gloshospitals.nhs.uk/work-for-us/training-staff/gsqja/quality-improvements/Can-you-PACE-yourself/>

15s30m stands for 15 seconds, 30 minutes – taking a few extra seconds at the start of a process can save someone a lot of time further along, reducing frustration and increasing joy at work.

<https://fabnhsstuff.net/fab-stuff/15-seconds-30-minutes>

Transfusion 2024 – A 5-year Plan for Clinical and Laboratory Transfusion

<https://www.nationalbloodtransfusion.co.uk/sites/default/files/documents/2023-03/Transfusion%202024%20Brochure%20FINAL%20%2811.12.2020%29.pdf>



References

Narayan, S. et al., 2023. *The 2022 Annual SHOT Report*, Manchester: Serious Hazards of Transfusion (SHOT) Steering Group. doi: <https://doi.org/10.57911/WZ85-3885>.

Serious Hazards of Transfusion (SHOT), 2022. *Central Alerting System: Preventing transfusion delays in bleeding and critically anaemic*. [Online] Available at: <https://www.cas.mhra.gov.uk/ViewandAcknowledgment/ViewAlert.aspx?AlertID=103190> (Accessed 08 April 2024).

