

2023 Annual SHOT Report – Supplementary information

Chapter 12: Avoidable, Delayed or Under/Overtransfusion (ADU)

Additional analysis not included in the main 2023 Annual SHOT Report.

Problems with MHP activations n=65

In 65 cases activation of the MHP was reported (28 of these occurred out of hours):

- 50 delays (1 death possibly related)
- 12 avoidable including 9 instances with use of O D-negative red cells
- 1 undertransfusion
- 2 overtransfusion (1 death possibly related)

The case below shows how poor communication, short staffing and lack of clarity about roles combined to delayed transfusion resulting in admission to the ICU.

Case 12.1: Communication confusion, poor organisation of MHP roles combined with delayed recognition of bleeding result in major morbidity

A patient with acute bleeding (delayed CT scan to assist diagnosis) suffered cardiac arrest. The MHP was activated incorrectly – the doctor rang the transfusion laboratory directly (lack of knowledge of the organisation) rather than activating through switchboard so the porter was not alerted leading to delay in blood collection. The sister in charge was multi-tasking in the busy ward as the neighbouring patient was being discharged and so she was not fully present at the incident. The nurse looking after the patient was newly qualified and was busy doing chest compressions.

The patient was transferred to ICU and ultimately survived. The MHP activated again despite being ongoing. Timings: CPR from 14:38, MHP initially activated at 14:47. Pulse present at 16:48. Hb 79g/L on blood gas at 15:02, first two units collected from the transfusion laboratory at 15:15 (total six units of red cells and four FFP were transfused).

The report noted that there is a general shortage of staff on the ward who were heavily reliant on agency staff. There was no clear designation of roles within the MHP, and people were very busy with the patient due to cardiac arrest.

The local review concluded that MHP simulation training was urgently needed – and has been arranged. They are hoping to improve MHP knowledge with a multi-pronged approach, including 'fight for more time at induction', continue with dedicated simulation-based training and a slot at grand rounds. Target any departmental governance (or similar) meetings especially general medicine, surgery, ED and anaesthetics.

Communication issues can occur at several different points and delays accumulate.

Case 12.2: Staffing issues and poor communication together contribute to patient death

An elderly patient with known myelodysplasia was admitted with trauma out-of-hours following an unwitnessed fall. The laboratory staff telephoned the Hb 35g/L to ED at 21:23 and advised that a single sample was needed for confirmation and crossmatch (multiple historical records). Two samples were received at 22:45, but both were rejected due to wrong DOB. The ED was informed immediately. At 00:40 ED notified the laboratory staff that they were taking the emergency O D-negative units and there was a repeat sample in the pod (which should not be used for emergencies). Due to the delay (>3 hours) the patient was now very unwell and unable to wait for crossmatched blood.

The ED was very busy (winter pressures) and short staffed. Staff did not pass on information about the low Hb to the doctor. The patient later died and the delay in transfusion was considered contributory.

Case 12.3: Undertransfusion of a patient with major haemorrhage during interhospital transfer

This case has been discussed in Chapter 12c, Under or Overtransfusion. This transfer occurred during a nurses strike and no staff were available to accompany the patient. This is a reminder that hospital transfer of a bleeding patient carries risks; hospitals should ensure that guidelines are followed for equipment and personnel. This patient died but the interruption of transfusion was not considered to be contributory.

Learning points

- Major haemorrhage protocols need to be easy to locate and should be followed
- Streamlined communication helps reduce delays
- Transfer of patients between hospitals during transfusion carries additional risks when staffing is inadequate

Human factors

Problems with staffing and workload were identified in many reports. Information was available in 379/382 reports. Human factors questions were not answered for 3 reports). Communication problems were common and noted in nearly half the reports.

In answer to the question 'To what extent was there a mismatch between workload and staff provision around the time of the incident?' In 104/379 (27.4%) reports this was noted as 'yes' with the majority, 68/104 (65.4%), in reports of delayed transfusion, including deaths; 2 'probably' and 2 'possibly' related (Table 12.1).

Poor communication was noted to worsen the situation in 178/379 (47.0%) reports including 116 delays: 4 where death was 'possibly' and 2 'probably' related to the delay (Table 12.2). Four deaths 'probably' or 'possibly' related to delay had both a mismatch between workload and staff provision at the time of the incident and poor communication.

Table 12:1: To what extent was there a mismatch between workload and staff provision around the time of the incident?

| | Delays | Avoidable | Under or overtransfusion | PCC |
|--------------------|------------|-----------|--------------------------|-----|
| Total n=104 | 68 (65.4%) | 21 | 6 | 9 |

Table 12:2: To what extent did poor written, or verbal communication worsen the situation?

| | Delays | Avoidable | Under or overtransfusion | PCC |
|--------------------|-------------|-----------|--------------------------|-----|
| Total n=178 | 116 (65.2%) | 51 | 6 | 5 |

Laboratory errors

Laboratory errors have been highlighted in the chapter on delayed transfusion (56 reports). The key themes were lack of knowledge and training of staff, and failures of effective communication.

Delays with PCC infusion

Most reports associated with PCC (17/23) were delays (all were taking oral anticoagulants). Nine had ICH. There is increasing evidence that delays and deaths can be reduced by using a standard emergency dose of PCC. Hospitals are therefore encouraged to set this up.

Conclusion

Patients are at risk of death from major haemorrhage, and this is exacerbated by poor communication and delays. Delayed PCC administration can be reduced by using an initial fixed dose. Staffing shortages must be escalated and addressed by good capacity planning.

Recommended resources

Avoidable, Delay and Under or Overtransfusion (ADU) Cumulative Data:

<https://www.shotuk.org/resources/current-resources/data-drawers/avoidable-delay-and-under-or-overtransfusion-adu-cumulative-data/>

UKTLC: Capacity planning guidance May 2021

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

Guidance on: Transfer of the critically ill adult

<https://ics.ac.uk/resource/transfer-critically-adult.html>