Handling and Storage Errors (HSE) n=243

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Authors: Diane Sydney and Hema Mistry

Definition:

All reported episodes in which a patient was transfused with a blood component or plasma product intended for the patient, but in which, during the transfusion process, the handling and storage may have rendered the component less safe for transfusion.

Key SHOT messages

- Communication is important at all stages in the transfusion process i.e. during handover, between laboratory and clinical areas, between departments, and with the patient. Unambiguous communication is pivotal in every aspect of the transfusion process
- **Do Not Assume: Verify!** Many cases demonstrated a lack of communication which directly led to the error or was a contributing factor

In 2017 there were 243 cases reported compared to 192 in 2016. Clinical errors accounted for 169/243 (69.6%) and laboratory errors for 72/243 (29.6%). The other 2/243 (0.8%) errors were neither in a clinical or laboratory category as they occurred in non-transfusion service vehicles, for example taxis.

There has been an increase in cold chain errors (CCE) from 61 in 2016 to 90 in 2017 (Figure 9.1). There were 74 reports where the duration of transfusion of a unit exceeded 5 hours.

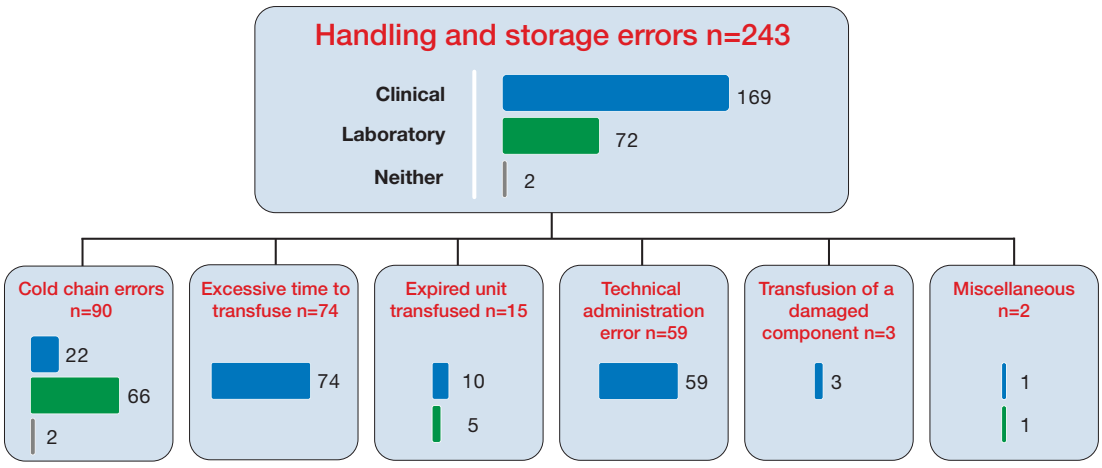

Figure 9.1: Breakdown of 2017 HSE reports n=243

Case 9.1: Communication error leads to excessive time to transfuse

Nurse 1 asked if she could help her colleague (Nurse 2) by administering the transfusion for a haematology patient to allow Nurse 2 to have her break. Nurse 2 went for her break while the blood was being collected but left the instruction that the blood had to 'run slow' as the patient was breathless. The transfusion was commenced by Nurse 1 at 11:10 with observations being completed according to hospital policy, prior to, and 15 minutes into the transfusion. On completion of these observations Nurse 1 returned to her allocated clinical area and assumed that her responsibility for the transfusion was over and that Nurse 2 would resume responsibility on return from their break.

However, at 16:45 an agency nurse taking over from Nurse 2 reported that the transfusion was still running (more than 5 hours). On this occasion the patient did not come to any harm.

The patient was put at additional risk by lack of communication during the handover and a lack of clarity about where responsibility starts and ends, especially when staff are covering breaks. Each nurse assumed that the other was responsible for the management of the transfusion. Good communication between clinical teams could have prevented this error.

Case 9.2: Staff multitasking and being distracted during a suspected transfusion reaction led to miscommunication

Following a suspected transfusion reaction, the nurse, who had limited experience of administering transfusions, contacted the laboratory for advice and was asked to return the unit 'to the refrigerator'. The nurse then proceeded to return the blood to the ward refrigerator and not to the temperature-monitored transfusion laboratory refrigerator. The inexperienced nurse was distracted by the suspected transfusion reaction in the patient and did not understand the instruction from the laboratory staff leading to a miscommunication between the laboratory and the nurse.

This account suggests that the transfusion training for this nurse was inadequate.

Case 9.3: Incorrect transport and delivery of red cells by clinical staff

A porter was asked to collect blood urgently by theatre staff in a 'cool box'. When the porter arrived at the laboratory there was no biomedical scientist (BMS) there to assist. After speaking to a BMS from another discipline who stated that they did not know where the cool packs were, the porter took a 'cool box' and signed the blood out of the refrigerator. On arrival in theatres ice was added from the theatre ice machine before delivering to the theatre. It was not established if this was by the porter or theatre staff. The first unit was transfused and the second unit was returned to the laboratory and discarded. Theatre staff were aware of the correct procedure which was to page the BMS to request blood to be delivered in a special box.

All staff (clinical and laboratory) should ensure that components are packaged appropriately in a validated transport box and that the correct documentation accompanies the components. Clinical staff should contact their local transfusion laboratory to seek advice and refer to local policy for collection of components.

Learning point

- Staff should have knowledge and understanding about handling and storage of all components to ensure that they are safe for transfusion

Near miss HSE cases n=154

The near miss incidents related to HSE show similar learning points to the full incidents that led to transfusion of components.

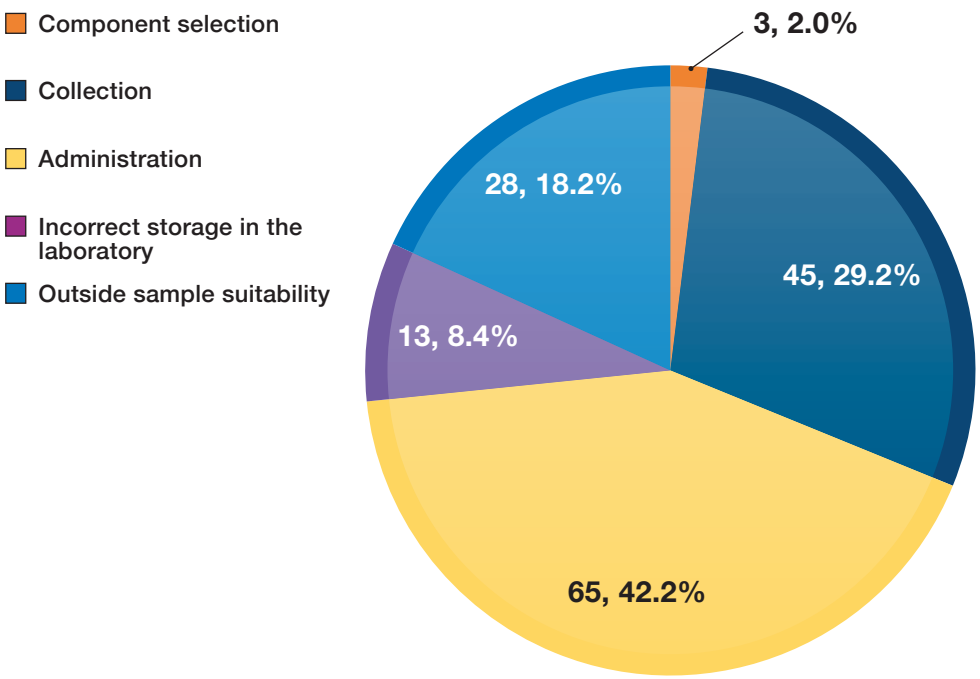

Figure 9.2: Near misses that could have led to HSE n=154

Information technology (IT)-related HSE cases n=27

Refrigerator failure. Blood that had been out of temperature control was transfused n=25

Following a refrigerator failure, a retrospective audit showed that 21 units were transfused that had been out of temperature control. The refrigerator was taken out of use after the third temperature excursion and replaced by the manufacturer. In another refrigerator failure where the temperature dropped below zero one unit was transfused and 70 were wasted. In a third event a refrigerator temperature was >6°C for 3 hours. Four units were transfused to three patients and a further five units discarded.

Transfusion of expired units n=2

One unit of platelets was transfused 2 hours after expiry because the correct expiry date was not set when booking into the laboratory information management system (LIMS). A unit of red cells was transfused although the validity of the sample used to crossmatch had expired following recent transfusion and the allocated units had not been removed from the refrigerator.

Commentary

As in previous years there has been very little alteration in the overall findings. SHOT continues to highlight that **all** staff participating in the collection and administration of components should be adequately trained and adhere to the correct procedures. All staff need to be aware of infusion times and use the correct administration giving sets (BSH Robinson et al. 2018).

All laboratory related HSE including key messages and learning points are discussed in further detail in Chapter 7, Laboratory Errors.

References

Bolton-Maggs PHB (Ed), Poles D et al. on behalf of the Serious Hazards of Transfusion (SHOT) Steering Group. 2016 Annual SHOT Report (published 2017). https://www.shotuk.org/wp-content/uploads/SHOT-Report-2016_web_11th-July.pdf [accessed 8 January 2018].

BSH Robinson S, Harris A et al. The administration of blood components: a British Society for Haematology Guideline. *Transfus Med* 2018;**28(1)**:3-21. http://onlinelibrary.wiley.com/doi/10.1111/tme.12481/pdf [accessed 22 February 2018].