2019 Annual SHOT Report – Supplementary information

Chapter 9: Incorrect Blood Component Transfused (IBCT)

Information technology (IT)-related IBCT cases n=127

IBCT-wrong component transfused (WCT) n=25

In 1 case an O D-positive unit had been misplaced in the short-dated drawer in the blood stock refrigerator and was selected and transfused to an O D-negative female patient in her 40s. Although the laboratory information management system (LIMS) warned of the blood group discrepancy, it was not heeded.

In the 2nd case a stem cell transplant protocol was not provided to the transfusion laboratory so was not put on the LIMS in a timely manner and the wrong blood was issued.

Case 9.8: Wrong blood issued for non-urgent transfusion during IT downtime

An elderly female with no red cell antibodies was given two units of O D-positive blood during IT downtime. She was actually O D-negative and this was identified when the manually issued units were retrospectively entered into the LIMS. The error was an incorrect manual interpretation of the blood group, but also failing to have a second checker of the results and the issue of correct components when manual procedures were in place. The scheduled IT downtime lasted for 6 hours, 2 hours longer than expected, and the hospital transfusion laboratory was issuing blood for non-urgent patients during this time which made the laboratory staff very busy.

Case 9.9: Incorrect use of electronic blood tracking system

A postoperative female patient aged less than 50 years with a haemoglobin (Hb) of 70g/L required an 'urgent' transfusion. A registered nurse did not follow the correct procedure when collecting blood from a remote issue refrigerator. Two units of group O D-positive red cells were removed without entering the patient's details or printing a compatibility label. The blood was then transfused to the patient without any bedside checks. Fortunately, the patient was O D-positive and suffered no adverse effect.

Learning points

- Remote electronic issue systems must be set up safely so that non-emergency blood cannot be collected without going through a compatibility procedure. This applies to both routine and urgent transfusions
- Staff should be trained to understand their role in giving compatible blood to patients when using these systems and untrained staff must be prevented from accessing a remote electronic issue refrigerator
- When using emergency access procedures only emergency blood should be available for collection

IBCT-specific requirements not met (SRNM) n=102

Case 9.10: LIMS defaults to 18-week sample validity

A problem with the LIMS configuration was identified during a sample audit. It was recognised that two units of red cells had been collected from a remote issue refrigerator and transfused during an emergency in theatres based on a sample that was invalid (16-week-old). The local policy stated a maximum of 12 weeks for sample validity for remote electronic issue. Investigations during the audit showed that the LIMS defaults to a fixed sample validity of 18 weeks. This highlights the importance of configuring the LIMS to reflect local policies. Initial validation or periodic revalidation should have detected this discrepancy.

Case 9.11: An update to report printing has an unexpected effect on electronic issue (EI)

An algorithm intended to be run overnight identifies a general practitioner (GP) sample with a flag, prints the report to the external GP system and removes the flag from the sample to say this action has been completed. This had an unexpected effect on a completely different and unrelated task – that of identifying sample unsuitable for EI. The algorithm also removed the flag that states a sample has been manually edited and is ineligible for EI. This could potentially result in inappropriate permission for electronic blood issue. The hospital reported to the LIMS provider who have investigated. They were unable to provide a 'hot fix' as the problem sat within the underlying software and would require a new full version release. They provided a workaround by means of applying an additional unrelated flag as well as communicating to all users of their system. The error was fixed in the new version of the software; however users of the original version still require the workaround for proper function.

It is important that when LIMS systems are validated, critical functions are testing to the fullest ability, to ensure unexpected interactions do not occur. However, the hospital involved in this case highlighted the issue to the LIMS provider and prevented potential transfusion complications for other hospitals. LIMS providers have a responsibility to produce software which is fit for purpose and does not introduce any errors to the transfusion process.

Learning point

- It is standard practice to validate critical processes after a software upgrade. This should include all critical processes, even those that are not obviously related to the change or improvement. In addition, any unexpected consequences of a software upgrade should be fully investigated and reported to the software provider

Failures involving electronic blood management systems

Case 9.12: Use of remote EI fails to provide irradiated blood components

Two units of irradiated red cells were requested for a male in his 70s with Hodgkin's Lymphoma. This specific requirement was not flagged on the LIMS, but irradiated blood was crossmatched and placed in the issue refrigerator. The clinical staff by-passed the crossmatched blood and opted for remote-issue blood instead. Because the LIMS flag had not been set, Bloodhound360® then released short-dated non-irradiated blood and one unit plus 100mL of the second unit was transfused before this error was detected.