Right Blood Right Patient (RBRP) n=278

16

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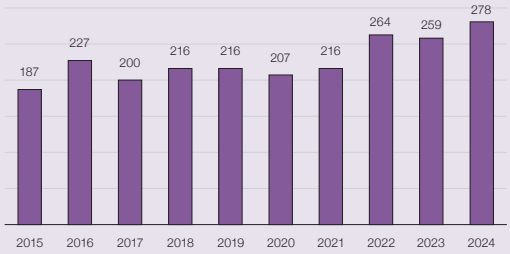
Headline data 2024

Number of reports n=278
Deaths n=0
Major morbidity n=0

RBRP reports by year



Demographic data

Male n=144
Female n=128
Unknown n=6

Adults n=261
Paediatric n=16
Unknown n=1

Blood component data

Red cells n=237
Platelets n=14
Fresh frozen plasma (FFP) n=4
Cryoprecipitate n=2
Multiple components n=21

Key findings:

- The number of RBRP events have increased in 2024
- Errors with patient demographic details, in the laboratory and clinical settings, accounted for 62.6% of all RBRP errors
- Sample taking accounted for 46.6% of the errors in the clinical areas and component labelling errors made up 56.9% in the laboratory
- The number of laboratory near miss (NM) RBRP errors increased considerably in 2024, with the majority being component labelling errors

Gaps identified:

- Positive patient identification (PPID) processes not being undertaken at critical steps in the transfusion process
- Pre-transfusion checklists being used as a 'tick box' exercise rather that the last opportunity to detect errors
- Errors may have been detected in 97.2% of laboratory cases with the effective use of a laboratory exit check

Good practice:

- Human factors principles were applied during incident investigations in 80.9% of cases
- In NM RBRP, 73.6% errors were detected at the pre-administration checks, with 67.2% using a formal pre-administration checklist

Next steps:

- Consistent use of safety checks, such as laboratory exit checks, collection checks and the consistent use of pre-administration checklists should be embedded throughout the transfusion pathway

For all abbreviations and references used, please see the **Glossary** and **Reference list** at the end of the full Annual SHOT Report. Please see the supplementary information on the SHOT website (https://www.shotuk.org/shot-reports/annual-shot-report-2024/).

Definition:

Incidents where a patient was transfused correctly despite one or more serious identification (ID) or prescription errors which in other circumstances might have led to an incorrect blood component transfused (IBCT).

Introduction

There were 278 cases reported in 2024, an increase from 2023 (n=259). Clinical cases accounted for 206/278 (74.1%) and laboratory cases 72/278 (25.9%). Although more cases were reported in 2024, the overall ratio between clinical and laboratory cases remained largely unchanged from 2023.

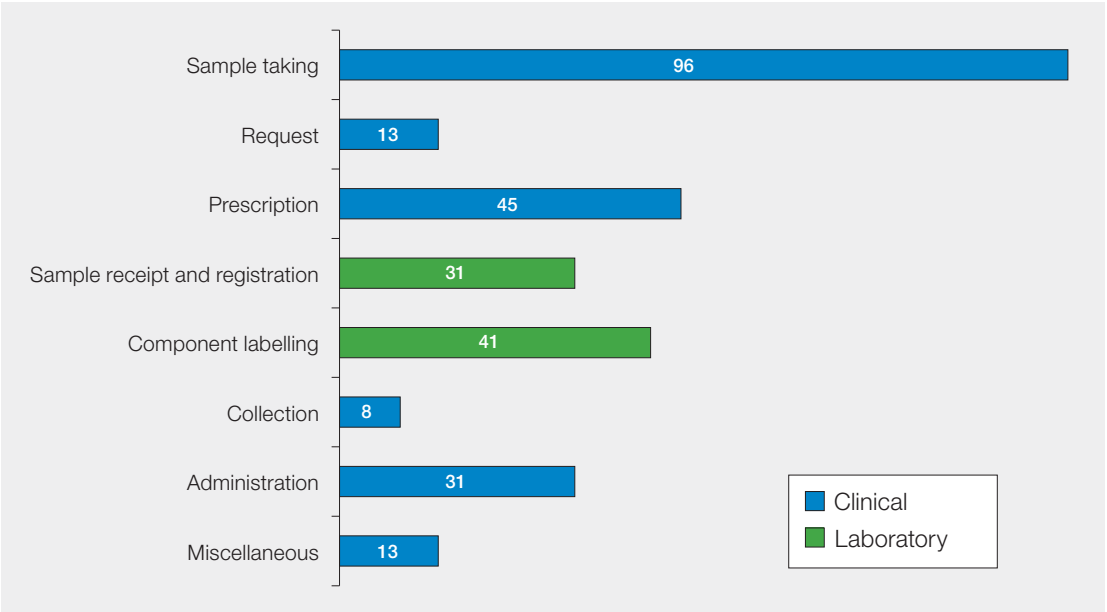
Deaths and major morbidity related to transfusion n=0

There were no deaths or major morbidity related to the transfusion because of RBRP errors.

Overview of RBRP errors

Primary RBRP errors occurred in 7 out of the 10 steps in the transfusion process. Errors with patient demographic details, in the laboratory and clinical settings, accounted for 174/278 (62.6%) of all RBRP errors. Patient identification (PID) errors occurred throughout all steps of the transfusion process, with 108/174 (62.1%) due to sample and request form transcription errors in the clinical area. Laboratory errors accounted for 39/174 (22.4%) where the patient identification information was not heeded, data was incorrectly selected and/or entered into the laboratory information management system (LIMS) or there was a failure in linking, merging or reconciling computer records.

Figure 16.1: RBRP classified by the step in the transfusion process where the primary error occurred in 2024 (n=278)



Clinical RBRP errors n=206

Clinical RBRP reports were mainly due to PID errors, 135/206 (65.5%). In addition, there were 13 patients who were transfused without a wristband and 9 cases where no pre-administration check was undertaken. The largest number of errors in clinical RBRP occurred at sampling, 96/206 (46.6%), followed by prescription errors, 45/206 (21.8%), administration errors, 31/206 (15.0%) and incorrect details on the transfusion request in 13/206 (6.3%). Collection errors accounted for 8/206 (3.9%) cases and of these 4/8 involved information technology (IT).

Case 16.1: Blood component administered on wrong date of birth (DOB)

A patient had two group and screen (G&S) samples taken for a planned transfusion. There was no ID band on the patient during sample taking as they were an outpatient. They had three entries on the electronic patient record (EPR) system with different hospital numbers, with various DOB. An incorrect DOB was recorded on the sample, which matched the request and the record in the laboratory. The chosen entry had the correct National Health Service (NHS) number but incorrect year of birth.

They were subsequently admitted for an elective transfusion. Two units of red blood cells were issued, which were labelled with an incorrect DOB. On admission, and while preparing the patient for transfusion, it was noticed that the DOB was incorrect. The EPR system was updated with the correct details and a new ID band was printed and attached to the patient. The red cells were collected and during the pre-administration check, it was noted that the DOB was incorrect on the blood component label. The staff member checking the component was the same one who had updated the DOB on the system. They felt confident that this was the right blood for the patient and, after informing the second checker of this, decided to continue with the transfusion. After starting the transfusion, they sought advice from the haematologist about how to proceed with the second unit. They were advised to repeat the G&S sample and to request that the transfusion laboratory re-issue the red cells based on the correct details.

Following local investigation, several contributory factors were noted. The LIMS also had two different entries for the same patient, with different DOB but the same NHS number. When selecting the patient on the order communications system, assumptions were made that the patient details with the NHS number were correct. There were missed opportunities to detect the PID error at phlebotomy, collection and during pre-administration checks.

Prescription errors n=45

Of the 206 clinical errors, 45/206 (21.8%) were related to errors in the prescription step of the transfusion pathway. These included 6 cases where incorrect patient identification details were recorded on the prescription and 1 prescription had the details of two different patients. In 5 cases, the prescription contained incomplete/incorrect information and in 1 case the incorrect patient had been selected from the EPR. A pre-administration checklist had been used in 28/45 (62.2%) of these cases but failed to detect the error.

Pre-administration checklists

A pre-administration checklist was used in 123/206 (59.7%) of all clinical RBRP cases but failed to detect the error. In 77/206 (37.4%) it was stated that a checklist was either not used, not available or not applicable. In 6 cases, no information was provided.

Laboratory RBRP errors n=72

Component labelling errors n=41

Transposition of compatibility labels between blood components intended for the same patient accounted for 15/41 (36.6%) of errors. In 9/41 (22.0%) cases patient demographics recorded on compatibility labels at the point of issuing were incorrect.

Sample receipt and registration errors n=31

Sample receipt and registration errors mostly occurred due to patient identification when booking in samples onto the LIMS, later leading to errors on the compatibility label, 30/31 (96.8%). These errors were largely due to demographic data entry errors, 23/31 (74.2%), available information on the sample or request form not heeded, 5/31 (16.1%) and 2 cases where the information was missed on the request.

Errors related to the use of IT occurred in 54/72 (75.0%) cases.

Case 16.2: Over 100 units transfused with incorrect patient ID due to inoperative IT caused by a cyber-attack

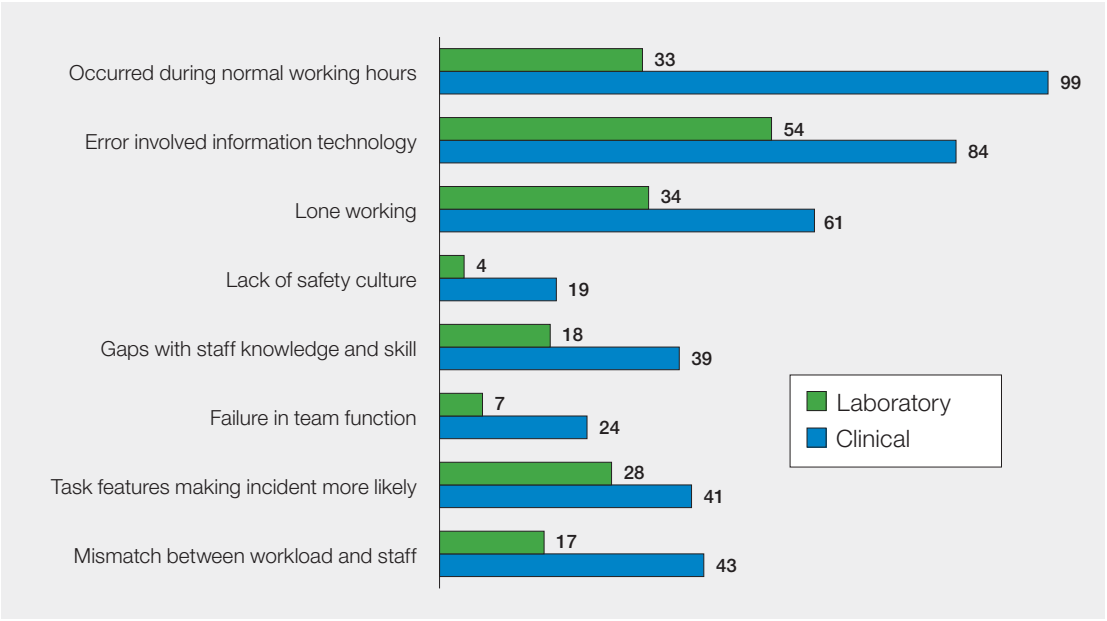
In June 2024, the blood transfusion laboratory was a victim of a ransomware cyber-attack on an unprecedented scale. The attack encrypted the entire LIMS and associated systems rendering it inoperative. The laboratory had to revert to manual processes to issue blood components. The LIMS was restored in September 2024. During this period, errors on the compatibility label were frequent due to the manual processes. A total of 540 patient records were created with incorrect details and used to issue blood components. Of these, 373/540 (69.1%) were detected by the quality management system. There were 167/540 (30.9%) patients where units were available for collection in the remote issue refrigerator with incorrect details on the compatibility label. Units for 148 patients were collected from the blood refrigerator with incorrect details. In 136 cases, the kiosk did not alert the user to the incorrect details. In 12 cases the kiosk did alert the user, but the units were still collected. In 133 cases, the unit with incorrect details arrived at the patients' side. In 16 cases, the error was detected by the pre-administration check and not transfused. In 40 cases a manual pre-administration check failed to prevent the transfusion. In 50 cases, an electronic pre-administration check alerted the user to the error, but the transfusion continued.

This case highlights the risk of manual based processes in transfusion despite rigorous double checking. The huge influence of situational and system factors, particularly the ambiguity of the first and middle name fields as displayed throughout the current EPR system contributed to the errors.

Contributory factors to RBRP errors

Investigations into errors often consider limited causes and contributing factors without fully understanding why the failure occurred in the first place. Recognising the immediate and underlying reason of the error, not only helps prevent a recurrence, but it also facilitates the design of effective control measures and improves patient safety (Brennan & Oeppen, 2022).

Figure 16.2: Contributory factors in RBRP errors reported in 2024



Near miss RBRP cases n=125

There were 125 near miss RBRP incidents, 19/125 (15.2%) originated in the clinical area and 106/125 (84.8%) in the laboratory. Component labelling errors, 86/106 (81.1%) accounted for most cases in the laboratory. In the clinical area, sampling errors, 7/19 (36.8%) were the most reported.

Learning point

- Thorough investigation of near miss RBRP incidents is vital as findings from these investigations will provide 'free' learning opportunities

Conclusion

Pre-administration safety checks, undertaken at the patients' side can detect RBRP errors, but these must be carried out correctly to be effective. The errors which resulted in RBRP incidents are the same errors which can cause patient harm in different circumstances. There is a misconception that IT solutions are the only way to prevent RBRP errors. However, some reports highlight that unless these systems are integrated and used correctly, errors are still possible. Overreliance on IT systems introduces the potential for error and staff should be aware of downtime procedures, as emphasised by the recent cyber-attacks. Organisations should ensure procedures within business continuity plans are risk assessed and cover IT downtime.

Recommended resources

SHOT Video: The Pre-administration Blood Component Transfusion Bedside Check 2020
https://www.shotuk.org/resources/pre-administration-blood-component-checking-process/

Safe Transfusion Practice: Transfusion Checklist
https://www.shotuk.org/resources/safe-transfusion-practice-transfusion-checklist/

SCRIPT Using Information Technology for Safe Transfusion
https://www.shotuk.org/resources/using-information-technology-for-safe-transfusion/