Right Blood Right Patient (RBRP) n=259 14

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Definition:

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

Abbreviations used in this chapter

BMS	Biomedical scientist	**PTR**	Patient transfusion record
EBMS	Electronic blood management system	**RBRP**	Right blood right patient
EPR	Electronic patient record	**RCA**	Root cause analysis
LIMS	Laboratory information management system	**TACO**	Transfusion-associated circulatory overload
PID	Patient identification		

Key SHOT messages

- Effective use of pre-administration checklists play an important role in detecting PID errors prior to transfusion. Where noncompliance is detected, appropriate actions must be taken to ensure accurate and complete PID prior to commencing the transfusion
- Most laboratory errors could have been prevented by using a laboratory exit check highlighting the importance of safety checks at critical steps in the transfusion pathway
- RBRP errors have the potential to result in incorrect component transfusion in other circumstances

Recommendations

- The key recommendations from the 2021 Annual SHOT Report remain pertinent: importance of PID, laboratory exit checks, collection checks, and pre-administration checklist (Narayan, et al., 2022)
- RBRP errors should be investigated with the same rigour as incidents where patient harm occurred, as they highlight deficiencies in the process where harm was narrowly avoided

Action: All staff in transfusion, hospital risk departments, all staff investigating transfusion incidents

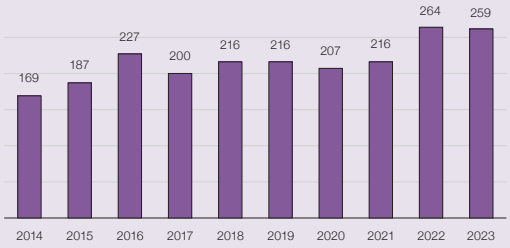
- Electronic systems should be used to their full potential to prevent RBRP errors

Action: Senior hospital managers, hospital transfusion committees, hospital transfusion teams

Headline data 2023

Number of reports n=259
Deaths n=0
Major morbidity n=0

RBRP reports by year



Demographic data

Male n=137
Female n=109
Unknown n=13

Adults n=234
Paediatric n=11
Unknown n=14

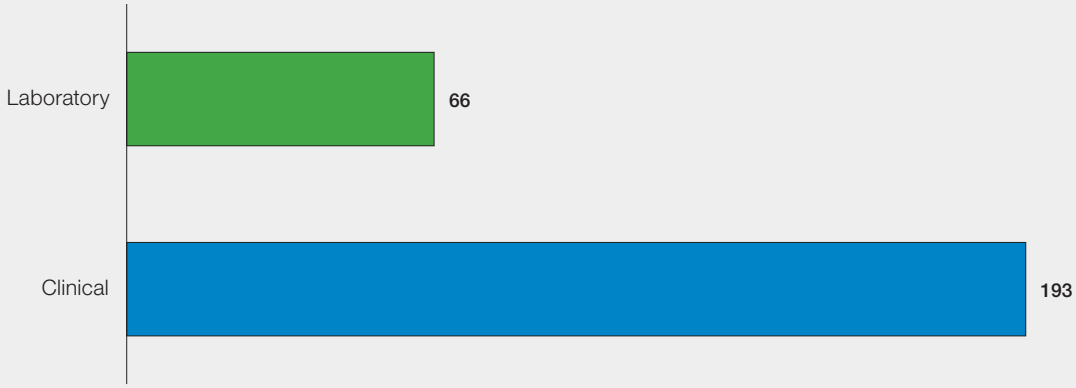
Blood component data

Red cells n=231
Platelets n=14
Plasma n=9
Multiple components n=4
Cryoprecipitate n=1

Introduction

There were 259 cases reported in 2023, a slight decrease from 2022 (n=264). Clinical cases accounted for 193/259 (74.5%) and laboratory cases 66/259 (25.5%). Clinical cases increased from 73.1% in 2022 and laboratory cases decreased from 26.9%.

Figure 14.1: Breakdown of RBRP reports in 2023 (n=259)



Overview of RBRP errors

Most laboratory reports were due to component labelling, 36/66 (54.5%) and errors with patient demographic details, 17/66 (25.8%). Of the labelling errors, 25/36 (69.4%) were due to transposed labels between units intended for the same patient. Sample receipt and registration errors accounted for 27/66 (40.9%) laboratory reports, with 17 demographic data entry errors and 7 cases where available information was not heeded. Most laboratory errors, 61/66 (92.4%) could have been detected by using a laboratory exit check such as PAUSE (Narayan, et al., 2022).

Clinical RBRP reports were mainly due to PID errors at sample taking, 75/193 (38.9%) and 17/193 (8.8%) errors at administration which included 9 patients who were transfused without a wristband. In 53/193 (27.5%) cases, the primary error was in the prescription and 23/193 (11.9%) related to incorrect details on the transfusion request. Collection errors accounted for 12/193 (6.2%) cases and of these 6/12 (50.0%) were because of PID errors.

The largest number of errors in RBRP occurred at sampling, 75/259 (29.0%) followed by prescription errors, 56/259 (21.6%) and component labelling errors accounted for 37/259 (14.3%) (Figure 14.2).

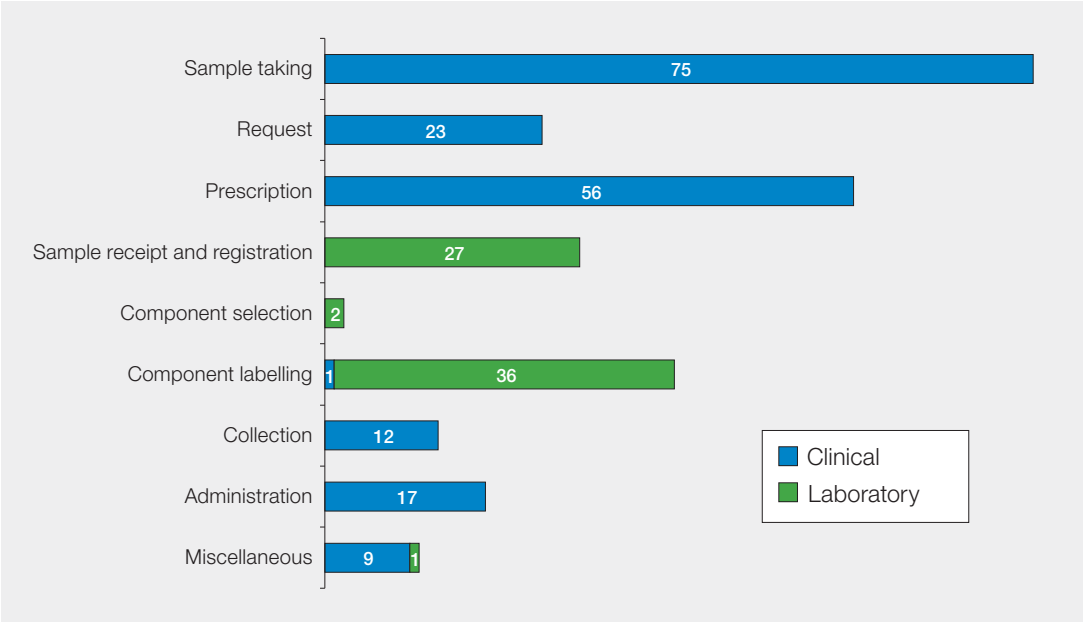


Figure 14.2: RBRP classified by the step in the transfusion process where the primary error occurred in 2023 (n=259)

Patient identification (PID) errors n=150

Errors with patient demographic details, in the laboratory and clinical settings, accounted for 150/259 (57.9%) of all RBRP errors. PID errors occurred throughout all steps of the transfusion process, with 92/150 (61.3%) due to sample and request form transcription errors in the clinical area. Laboratory errors accounted for 25/150 (16.7%) where the patient identification information was not heeded, or data was incorrectly entered into LIMS.

Case 14.1: Blood component transfused despite PID/compatibility label mismatch

A group and screen sample was incorrectly labelled for the intended patient and a unit of red cells was issued and transfused with incomplete details. The clinical staff contacted the transfusion laboratory and queried the name discrepancy. The BMS said the blood component was safe to transfuse and incorrectly told the clinical team it was a middle name instead of the second part of the forename. The sample should have been rejected and the blood component recalled. The RCA concluded that the patient details on the sample were taken from the EPR not the patient's ID band. The two-part forename was assumed to be a middle name and not included on the sample. A contributing factor was that the discrepancy between the request form and sample was not detected.

This demonstrates how inaccurate PID at the sampling step impacts on the safe administration of a blood component. It highlights the importance of labelling samples directly from the patient's ID band which must be attached to the patient. Assumptions were made by the BMS with regards the patient's name and there was no check against the request form and sample label, which would have detected the error.

Clinical RBRP errors n=193

Prescription errors n=56

Of the 193 clinical errors, 56/193 (29.0%) were related to prescription errors, where 8 errors had incorrect patient details on the prescription. A pre-administration checklist had been used in 38/56 (67.9%) cases but failed to detect the error.

Case 14.2: No patient identifiers on the prescription

Due to an incomplete record of traceability, a copy of the PTR was requested as evidence of transfusion. Only the actual prescription section of the PTR had been completed without patient details on either the front or the back of the PTR to indicate which patient the prescription was for. The prescriber had not completed the patient details on the consent section, TACO pre-transfusion risk assessment, indication for transfusion and pre-transfusion results. Despite the prescription being incomplete, both units of red cells were administered to the patient by an external agency nurse who was not trained to administer transfusions in the hospital.

There were multiple cumulative errors in this case, any of which could have resulted in an IBCT. RBRP cases provide free learning opportunities to rectify patient safety issues before harm occurs and should be investigated to the same extent as patient harm incidents.

Pre-administration checklists

Total clinical RBRP errors:

- 121/193 of errors used a pre-administration checklist, but failed to detect the error
- 4/193 had a checklist available but did not use it
- 27/193 did not have a pre-administration checklist implemented in their organisation
- 41/193 stated a checklist was not applicable, or did not answer the question

Laboratory RBRP errors n=66

There were 66 laboratory errors, most of which were due to component labelling errors (36/66) and sample receipt and registration errors (27/66).

Component labelling errors n=36

Labelling errors were mainly due to transposition of labels between units for the same patient (25/36).

Sample receipt and registration errors n=27

Sample receipt and registration errors were mainly due to patient identification errors at the booking in stage leading to errors on the compatibility label (26/27). These errors were mostly due to demographic data entry errors (17/26) and available information on the sample or request form not heeded (7/26). Case 14.3 illustrates a data entry error resulting in incorrectly labelled red cells being transfused.

Case 14.3: PID amended in error by laboratory and assumptions by clinical area led to unit of red cells being transfused

A BMS erroneously amended a patient's forename in LIMS in error to the name of the patient's ward. The forename field was adjacent to location field in LIMS on the patient registration page. This led to the unit being issued with the compatibility tag stating the incorrect forename and resulted in a compatibility tag and ID band mismatch at the bedside. A new ID band with the patient's name as the name of the ward was then printed (EPR had automatically been updated by LIMS) and used to transfuse the patient. Using the new ID band would not have alerted the staff to a mismatch on the EBMS which was then used to confirm patient identification.

The ward nurse noticed the patient's forename read as the ward name on EPR and the compatibility tag. This patient had restrictions on family members being aware they were in hospital and information being passed on to them. The nurse mistakenly attributed the change in name was to protect their identity. The staff nurse therefore printed a new ID band which was then used to transfuse the patient. As all other identifiers matched, they reported being confident that this was the correct patient.

Whilst it is encouraging to see interoperability between LIMS and EPR systems, proper process and restrictions should be in place for how and who can make amendments to patient identifiers.

Contributory factors to RBRP errors

Considering the human contribution to system failures and investigating the reasoning and behaviour of individuals, rather than attributing the error itself, facilitates change for reducing the potential for errors (Woods, et al., 1994). These identified that causative factors can be addressed through changes in practice and local working environments (Improvement Academy, 2022).

Analysis of the contributory factors in RBRP errors identified several commonalties between the clinical and laboratory settings (Figure 14.3).

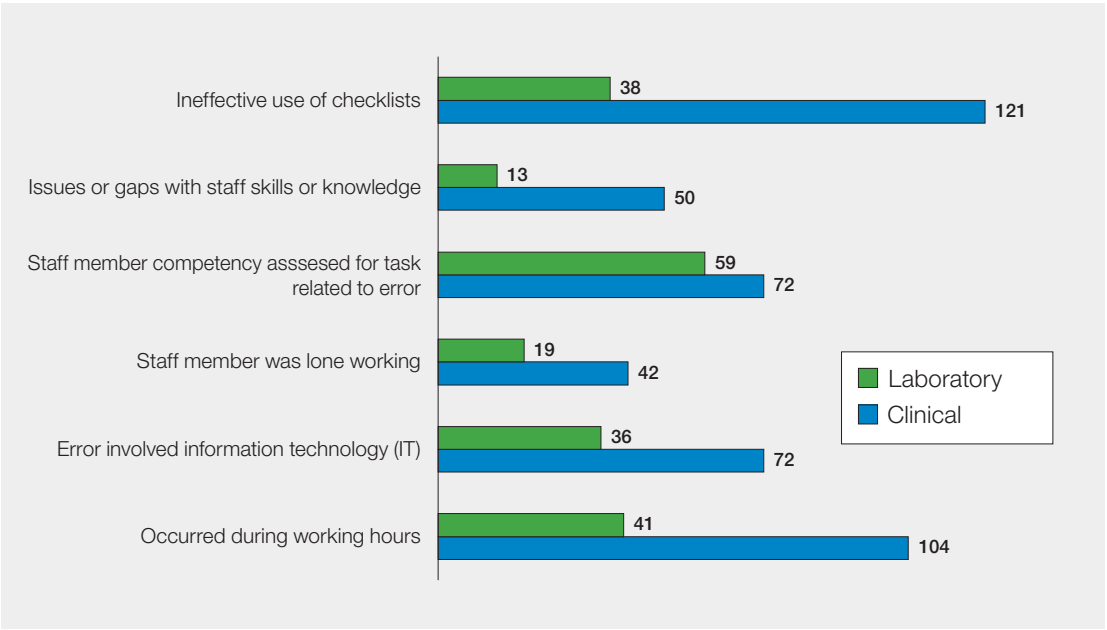
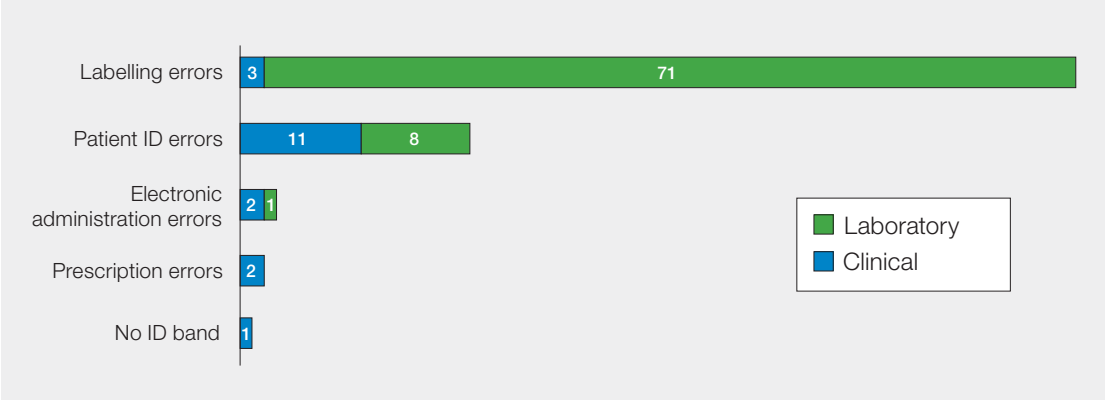


Figure 14.3: Contributory factors in RBRP errors reported in 2023 (n=259)

Near miss RBRP cases n=99

There were 99 near miss RBRP incidents, 19/99 (19.2%) originated in the clinical area and 80/99 (80.8%) in the laboratory. Component labelling errors, 71/80 (88.8%) accounted for the majority of cases in the laboratory. In the clinical area, sampling errors, 10/19 (52.6%) were the most reported. A high number of cases, 71/99 (71.7%), were detected at pre-administration checks, with 57/99 (57.6%) using a formal pre-administration checklist.

Figure 14.4: RBRP near miss events in 2023 by subcategory for clinical and laboratory errors (n=99)



ID=identification

Learning points

- All staff involved in the transfusion process should be aware of how to undertake accurate and complete PID checks
- Sample labelling must be undertaken at the patient's side using the ID band attached to the patient
- Pre-administration processes must include checking the patient's identity against the prescription and the blood component compatibility label

Conclusion

Patient identification is complex but remains fundamental to ensuring patient safety (HSSIB, 2024). Inaccurate and incomplete PID processes throughout the transfusion process can result in significant harm. Despite the use of pre-transfusion checklists errors continue to occur. Sampling and labelling errors remain undetected prior to transfusion, highlighting many deficiencies in clinical and laboratory processes. The lack of appropriate checks at the collection and administration (including prescription) steps resulted in missed opportunities to detect some RBRP errors. While transfusion procedures may differ between establishments, there are essential common checks that must be undertaken which could reduce the number of RBRP (and incorrect blood component transfused) incidents. Sampling, collection, and pre-administration checks should follow British Society for Haematology guidelines (Robinson, et al., 2018). The use of correctly configured information technology can act as an additional safety barrier to help detect and reduce RBRP errors.

Recommended resources

SHOT Video: The Pre-administration Blood Component Transfusion Bedside Check 2020
https://www.shotuk.org/resources/current-resources/videos/

SHOT PAUSE checklist
SHOT Safe Transfusion Practice: Transfusion Checklist
https://www.shotuk.org/resources/current-resources/

SCRIPT Using Information Technology for Safe Transfusion
https://www.shotuk.org/resources/current-resources/script/

References

Improvement Academy, 2022. *Yorkshire Contributory Factors Framework.* [Online]
Available at: https://improvementacademy.org/resource/yorkshire-contributory-factors-framework/ (Accessed 01 March 2024).

Narayan, S. et al., 2022. *The 2021 Annual SHOT Report,* Manchester: Serious Hazards of Transfusion (SHOT) Steering Group. doi: https://doi.org/10.57911/QZF9-XE84.

National Services Safety Investigations Body (HSSIB), 2024. *National learning report: Positive patient identification.* [Online] Available at: https://www.hssib.org.uk/patient-safety-investigations/positive-patient-identification/national-learning-report/ (Accessed 08 April 2024).

Robinson, S. et al., 2018. The administration of blood components: a British Society for Haematology Guideline. *Transfusion Medicine,* 28(1), pp. 3-21. doi: https://doi.org/10.1111/tme.12481.

Woods, D. D., Johannesen, L. J., Cook, R. & Starter, N. B., 1994. *Behind human error: cognitive systems, computers, and hindsight.* Ohio: Crew Systems Ergonomics Information Analysis Center.